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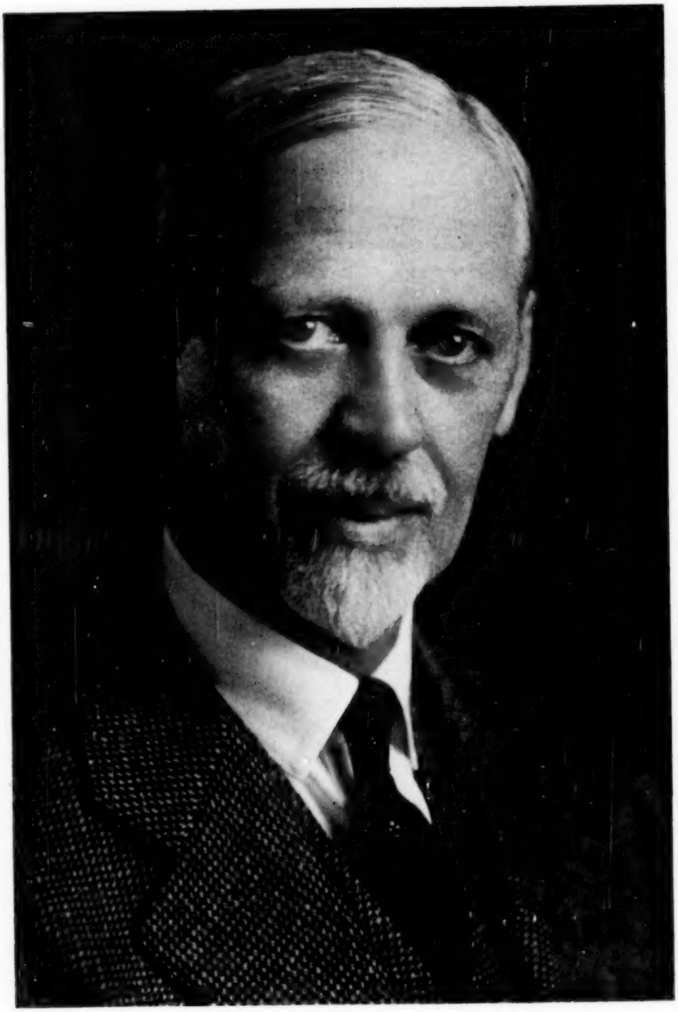

E. L. Bogart

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THE CONSTRUCTION OF A NEW THEORY OF PROFIT

By JEAN MARCHAL*

Most modern authors define profit as the *income of the firm* as such or as the *price paid for performing the function of enterprise.* This has not always been the case, however. Adam Smith, the founder of the classical school—so little a classicist himself—shows profit as the income of the capitalist entrepreneur, that is, as the income of the individual owner of a capital sum who uses this capital to hire workers, buy machines and manufacture products which he sells on a market. But after Smith have come a whole series of authors, from Say to the most modern neoclassical theorists, who have in one way or another, with all the resources of excessively atomistic analysis, dismembered Smith's basic idea. In profit, as Smith defined it, they treat as separate elements the interest which remunerates the capital provided by the entrepreneur himself and the wage which pays for his labor of direction and coordination of the factors of production. In the income of the entrepreneur, designated as *gross profit,* they isolate, after eliminating the interest on the entrepreneur's own capital and a wage for his labor of direction, a *net profit* which seems to them to be pure profit and which they then proceed to try to explain.[1]

The procedure we have just described presents in our opinion very serious difficulties. No anatomist who had dissected a cadaver and assembled in the proper order the heart, liver and entrails would dare to maintain that he had reconstructed the man. Everyone knows that analyzing the various organs which comprise a man does not enable us to understand the man completely. To understand a man it may be

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[1] See, for example, G. Pirou, *Economie Libérale et Economie Dirigée* (Paris, 1938), Pt. I, p. 187.

desirable to study his component parts one by one, but we must never forget that the anatomical pieces are not put together like the parts of a machine and that the living man is more than an assemblage of organs. Atomistic analysis can be useful. It has limits, however, and those who are not aware of those limits risk being their victims. A *global analysis,* a direct apprehension of the totality, is always necessary.

Accordingly, when we discuss profit we find that in practice entrepreneurs in computing their costs do not include in those costs a salary for their own labor of direction and interest on their own capital, all calculated at the prices which these factors could command on the market. What they call profit and what influences their activity is the *gross amount* which remains in their hands when their collaborators have been paid. This gross sum appears to them to remunerate all at once, without any distinction, everything which they have furnished to the enterprise. The man who receives this, in other words, is not a combination in one person of functionaries termed laborer, capitalist and enterpriser, but rather is an individual who, attracted by the prospect of gain, independence and the possibilities of command and initiative which he might exercise as the head of an enterprise, must, to fulfill that function, possess certain personal qualities, be capable of certain decisions, be able to assume certain risks and have at his disposal sufficient capital. *Our observation of the real world then shows us only gross profit* or *entrepreneurial income.* Net profit, wages of management, interest on the entrepreneur's own capital correspond to nothing real. They are the invention of ivory-tower economists.

But even granting all this, we have still missed, for our purpose, the essential point. A second step is necessary. This consists in observing that entrepreneurs obtain remuneration for their activity in a very different manner than do laborers or lenders of capital. The latter provide factors of production which they sell to the entrepreneur at prices which they naturally try to make as high as possible. The entrepreneur proceeds quite otherwise; instead of selling something to the enterprise *he identifies himself with the enterprise.* Some people doubtless will say that he provides the function of enterprise and receives as remuneration a sum which varies according to the results. But this is a tortured way of presenting the thing, inspired by an unhealthy desire to establish arbitrarily a symmetry with the other factors. In reality, the entrepreneur and the firm are one and the same. His function is to negotiate, or to pay people for negotiating under his responsibility and in the name of the firm, with two groups: on the one hand, with those who provide factors of production, in which case his problem is to pay the lowest prices possible; on the other hand, with the buyers of

the finished products, from whom it is desirable to obtain as large a total revenue as possible. To say all this in a few words, the entrepreneur, although undeniably providing a factor of production, perhaps the most important one in a capitalist system, is not himself to be defined in those terms. As a consequence of the particular nature of the factor which he provides he acts essentially as an *interruptor in the price circuit*. For us, the entrepreneur is, above all, an individual who in response to the dictates of the circumstances of production, and within the framework of those circumstances, tries to introduce or to maintain a difference between his selling prices and his buying prices or costs of factors. His first purpose, one might say his mission, is to prevent these two price-groups from coming together.

How is this done? Essentially, and this is our third point to clarify, by *acting on the market structure*.

The classical economists confidently maintained and their successors still profess to believe that entrepreneurs appear in the various markets where they buy and sell factors and products, always respecting the rules of the game as they have been formulated—that is, that they simply try to buy at the lowest prices and sell at the highest prices possible *within the established market structures*. But that never has been the case, and if it had been, profits would be at levels infinitely lower than those which have actually been reached. Always, and more and more, to the extent that capitalism has developed, entrepreneurs have tended, in order to increase their gains, to *act on the structure of the markets* where they operate, whether these are labor markets or capital markets or markets for finished products.

To accomplish this purpose, they have made every effort to increase the importance of their own firms; they have made alliances with each other; they have tried, by methods which have not always been legal, to mobilize to their advantage certain elements of the public authority. It has been possible for them, consequently, to attain several ends: to go beyond the limited sphere of individual action and to influence the total supply of products or the total demand for factors in the markets in which they participate; or, rather, to act, by methods which we shall describe, on the total demand for products and the total supply of factors with which they are faced so as to modify the preferences and the possibilities for action of those parties with whom they must contract; in short, to transform, for the furtherance of their own interests, the circumstances in which these negotiations take place.

It would thus appear, and this is from our point of view the most important thing to emphasize, that the action by which entrepreneurs secure a profit is, in the first instance, *a pressure action (action de*

puissance).[2] This explains the difficulties which the orthodox economists encounter in accounting for profit—the fact that they never discover more than a small part of the true theory, since indeed the very idea of positive action—of an action exerted on the market structure itself—is strange to them and since only a few of them have ever had, even briefly, any intuition of such a possibility.

We must now explain things as they appear in their new aspect of this dual action of entrepreneurial power—power exerted in relationships with consumers, on the one hand, and with factor-owners and in a general way with all those who exert some influence on costs, on the other hand. This will be the object of the remaining two parts of this paper. In conclusion, we shall describe the general character of profit and in the light of what we have learned shall criticize the theories actually prevalent.

I.—*Pressure Action Toward Consumers*

If competition fully prevailed, that is, if there were an infinite number of individuals capable of becoming entrepreneurs, if these individuals were exactly like each other, if they could procure all the factors necessary for their operations without encountering any obstacle resulting from the total or partial indivisibility of those factors, then selling prices would be automatically established at levels such that the entrepreneurs would have to pay out the entire amount to the factors of production without keeping anything for themselves. There would be no profit. For profit to arise there must be obstacles to the free play of competition. This shows that there is a profound affinity between profit and monopoly: the pursuit of profit leads to monopoly and only monopoly permits garnering a regular and lasting profit.[3]

Monopoly elements, however, may be important or may be quite weak. They may be an integral part of a state of affairs which is no longer perhaps perfect competition for the theorist preoccupied with scientific exactness but which is still undeniably competition for the practical man, the sort of competition which we can find in the real world. These monopoly elements may, on the other hand, encompass the entire market for the product we are considering.

A. *In competition in the practical sense,* a regime characterized simply by the existence of a large number of sellers who are not asso-

[2] *Cf.* F. Perroux, "Esquisse d'une théorie de l'économie dominante," *Archiv. de l'Inst. de Sci. Econ. Appliquée* (Apr.-Sept., 1948), p. 243.

[3] In the situation described in the text, only those profits or losses resulting from a change in the external situation would be realized. They would exist only for the time necessary for production to be adapted to consumption. Their duration would therefore depend on the obstacles to competition.

ciated and who are individually small relative to the total market, two elements necessarily intervene and bring about the appearance of profit.

These elements are, on the one hand, *the objective scarcity of entrepreneurs,* resulting from the fact that to perform this function it is necessary to combine conditions of aptitude, knowledge and possession of monetary capital which are possible only for a sometimes very restricted minority; on the other hand, the *subjective requirements* of the individuals who fill these conditions. That is, people will assume the rôle of entrepreneur and remain in it only if they secure a minimum income which they consider suitable, or, more exactly, which the least exacting among them consider indispensable, given the importance of the knowledge required, the risks run, the labor furnished, the capital engaged, the sort of life the entrepreneur himself must lead.

If only these elements were present, profits would often be very limited and much lower than those which we observe in the real world. But besides these elements we find others, dynamic and volitional by nature, resulting from the action of the entrepreneurs themselves and from the development of the economy.

1. First is the *use of advertising by certain entrepreneurs*. By this means entrepreneurs can exert power over consumers' choices. They can, by modifying consumers' preferences, by moulding those preferences to their own interests, lead consumers to prefer their products to competing products, and indeed to attach their loyalties to particular firms. They may in this way *prevent consumers in some degree from profiting by competition, or at the very least, limit the extent of such competition.*

We learn from research in the theory of monopolistic competition that in so far as advertising is not general, those who do avail themselves of it acquire very great profits. On the other hand, in so far as advertising does become general throughout a branch of production those profits cannot be maintained except in so far as the advertising succeeds in diverting toward this branch the purchasing power which would normally be directed toward others—certain individuals preferring, for example, to go to the movies rather than buy books, or to buy an automobile rather than have children and buy the things necessary to bring them up. The extent of this possibility, however, is limited. If advertising becomes general throughout a branch of production, then profits tend to disappear. Costs, inflated by advertising expenses, approach selling prices. An important influence is therefore exerted tending to eliminate the weakest enterprises, build up the others, and thence to bring about a state of oligopoly or of monopoly and thus permit the restoration of profit. Thus, we note in passing,

advertising starts one of the mechanisms of development of the system by which, as the system operates, its structure is progressively transformed.[4]

2. The second element is *the discovery by one of the competitors of a new product or of a better technical process for manufacturing an old product*. In so far as the process is not generally used, either as the result of taking out a patent or by the simple force of circumstances, the imaginative entrepreneur realizes a profit resulting from the fact that he is the only one to use the new process.

Schumpeter[5] has insisted at length on this point, showing that the essential thing, if we wish to understand the capitalist system, is not knowing how it administers existing structures, but how it creates new ones and destroys old ones. From this point of view, according to him, true competition is not that which takes place among existing enterprises and which the classical theorists have analyzed so exhaustively. It is that which constantly puts in opposition to old products and to established enterprises new products, revolutionary techniques, previously undiscovered raw materials, original forms of enterprise. There, Schumpeter tells us, we find the real competition, that which attacks not the profit margins but the very foundation and reason for being of existing enterprises. There we find the competition which is the true generator of progress. However, this competition, strange as it may seem, is possible only under the protection of monopoly. New enterprises must have the ability to establish monopolies permitting them to realize great profits to compensate them for the enormous risks which they run. These profits, however, are temporary and will be destroyed by the ultimate appearance of new processes or new products.

From this point of view, then, it seems that the desire for profit makes necessary continual alterations in the structure of economic organization, while the acquisition of those profits is possible only through the systematic search for those alterations.

3. A third element consists in *the increase in monetary demand*.

In many cases this increase will be due to causes quite apart from the action of entrepreneurs. It will nevertheless be advantageous to them. We know that, in general, production cannot follow an increase in demand without some delay. From this it follows that the enterprises which are on the spot and the owners of existing stocks will enjoy a

[4] On the effect of advertising and the theory of monopolistic competition, see E. Chamberlin, *The Theory of Monopolistic Competition* (Cambridge, Harvard Univ. Press, 1933), and on the conclusions which one can draw from that theory, see our *Cours d'Economie Politique* (Paris, 1950), Pt. I, pp. 621-29.

[5] J. Schumpeter, *Capitalism, Socialism and Democracy* (New York and London, 1942), and *Théorie de l'Evolution Economique* (Paris, 1935).

provisional or temporary monopoly permitting them to secure considerable profits. In addition to this, if, as happens in periods of inflation or war, the insufficiency of supply lasts long enough, the entrepreneurs will become accustomed to profit rates higher than those with which they were formerly contented and, when the situation returns to normality, they will insist upon these new rates, almost unconsciously stopping the expansion of production before prices and profits return to their original level. According to this hypothesis profit turns out to be a rent or conjunctural gain which an alteration of the psychological attitudes of the producers, an alteration ignored in the classics, may prolong for a greater duration than could have at first been foreseen.

However, positive action on the part of entrepreneurs will also occur when, now aware of this phenomenon, they try to exert pressure on the public authorities, either to inject purchasing power into the economy via the budget or credit policy in periods of crisis and depression, or, at any time and in any case, to refrain from deflationary policies. Thus it appears that entrepreneurs, even when they are not acting collectively at the economic level, may, by virtue of their numbers and through the medium of political action, attempt more or less consciously to induce general price movements which will permit them to maintain their profits at high levels. Contrary to one's first impression, then, the rise in profit following upon an important variation in aggregate monetary demand cannot always be analyzed as a simple rent or conjunctural gain. Such rises are, more often than many people believe, the result of positive action.

To summarize, it appears that even in a competitive regime, using this term in the practical sense, profit does not owe its existence, except for a small part, to the two elements of static monopoly, *viz.*, objective scarcity of entrepreneurs and their subjective requirements. The essential thing is found in the positive action exercised by producers individually or collectively in their relations with consumers. This action may take place through the medium of advertising, through discoveries, or through the more or less induced intervention of the public authority.

B. When for a situation of more or less restricted competition we substitute a ***situation of true monopoly*** the profits of enterprise are naturally augmented. This, in fact, produces important changes both from the static and from the dynamic point of view.

1. ***From the static point of view,*** we note first that the number of entrepreneurs is no longer limited by the objective circumstances, by the number of people who may have the requirements. Rather, it is limited by the willingness of those in the industry or profession to admit others to it. They may exercise this control by simply acting within

the framework of existing laws; *e.g.*, notaries and lawyers may buy up at their common expense a practice at the death of its incumbent in order to reduce the number of their competitors. Or entrepreneurs may persuade the public authorities to limit access to their industry or profession by direct restrictive measures or by increasing the formal requirements of competence. Or the entrepreneurs themselves may proceed by boycott, price-cutting or any other means to the elimination of those audacious individuals who have presumed to enter their preserves.

Besides this, from the day when collusion takes the place of competition, the decisions which are made or which must be made, are no longer a function of the state of mind and circumstances of the marginal entrepreneurs but rather of the whole group of entrepreneurs, discussing their decisions and acting upon them as a unit. They have a choice between two policies: either to establish a price such that the least favorably situated entrepreneur can acquire a sufficient profit—to conserve, in other words, the principle of the margin—or to establish a pooling arrangement among the associates so as to indemnify the least favored, substituting, consequently, the principle of the average for that of the margin.

To be as realistic as possible, we must add that the state of mind of the entrepreneurs is not generally translated directly into effective decisions. Men must *interpret* it. The directors of the alliance, according to their temperament, orientation and concern for the general interest may weaken or re-enforce the positions of the members of the group.

2. *From the dynamic point of view* we must add that the substitution of groups for individuals facilitates in a general way the positive action of entrepreneurs and changes somewhat the character of that action.

In the matter of advertising, the new situation means that the different enterprises within an industry no longer compete, but that industries compete with each other. We are no longer interested, for instance, in persuading buyers to prefer a Citroen to a Renault automobile, but rather in persuading them to give up going to the theater or the moving pictures or buying paintings in order to buy an automobile.

In the matter of adopting new products or new processes we rediscover a thesis of Schumpeter's.[6] According to this thesis, which is somewhat different from the one pointed out earlier, trusts and cartels are in a better position to support research laboratories, to realize technological progress and to lower their cost curves generally. This means that from the point of view of selling prices they pass from the

[6] J. Schumpeter, *Capitalism, Socialism and Democracy* (New York and London, 1942).

always delicate position of trying to raise prices to the much more advantageous one of simply holding them constant. For to maintain or to raise profits under these conditions it is sufficient on the consumption side to maintain prices. It is no longer necessary to stimulate a rise in them.

Finally, in the matter of influencing the public authorities, it is evident that groups are in a better position than isolated entrepreneurs to obtain favorable monetary measures, to secure programs of public works or to stimulate large governmental purchases of supplies.

In this type of entrepreneurial action, however, we must emphasize that groups are far from being always unanimous, and that, to the contrary, serious differences in points of view may appear among them. Export industries are generally favorable to monetary devaluation, a policy highly adverse to import industries. In France we have seen the sugar beet planters join forces with the producers of industrial alcohol and the wine distillers to force the public authority to purchase great quantities of alcohol, suggesting to them that they dispose of this alcohol by requiring that it be mixed with motor fuel. But the automobile manufacturers, who do not want their customers to have to spend too much on motor fuel, and the trucking companies, for whom the price of motor fuel is a cost, are violently opposed to this idea. Despite all this, however, these business groups generally avoid giving too much publicity to these internal rifts or pushing their differences too far, for they have too many other common interests, notably in regard to the prices of the factors of production.

Every action exerted on selling price, in fact, remains without significance if it is not accompanied by a parallel action tending to prevent the cost of production from varying in the same direction, indeed, to make it vary eventually in the opposite direction.

II.—*Pressure Action toward Factors of Production and Costs*

In their efforts to reduce costs of production entrepreneurs, individually or collectively, come into contact with laborers, with those who provide capital, and with the public authorities. In this whole area they exercise new and very important types of positive action.

1. *Toward laborers* entrepreneurs adopt a complex attitude. As a general rule they try, by using continually more advanced techniques, to replace men by machines. The advantage of this operation, whenever the machines are not too expensive, lies in the direct reduction of costs. But at the same time they diminish the demand for manual labor in relation to its supply and hence better their position in bargaining over the wage rate.

In the absence of associations of either employers or laborers, the wage rate is established at the intersection of the supply and demand curves for labor. But modern theories have shown that as a consequence of the abnormal form of the supply curve of labor, which is frequently S-shaped, several points of intersection may be encountered. Entrepreneurs try, consequently, to maintain the wage rate at that level which is most advantageous for them. Throughout the 19th century, for example, we note that they were first opposed to any legal limits to the hours of labor, and subsequently to any reduction of those hours. Indeed, they opposed the prohibition of the employment in factories of children below a certain age. Moreover, by measures such as the famous worker's pass-book (*livret ouvrier*) they can, with the consent of the public authorities, restrict the movement of workers from one center to another so as to modify the supply curve of manual labor and displace it in a direction favorable to themselves. In so far, then, as they succeed in establishing either a monopsony of demand on the labor market or a monopoly of supply on the product market, they can, as Mrs. Robinson has shown,[7] separate the wage rate from the value of the marginal product of labor, *i.e.*, exploit, as it were, their workers.

When there are unions, the struggle becomes more violent. Everything then depends on the course of negotiations between the employees' representatives and the employers. J. R. Hicks[8] has shown that it is possible to construct curves of employer concessions and labor union resistance, these curves representing the functional relation between the wage rate considered and the length of the strike necessary to secure it as seen respectively by employers and employees. These two curves permit us to determine the maximum wage rates which successful negotiation permits the labor unions to extract from the entrepreneurs. But what must be understood from our point of view[9] is that the shape and position of these two curves depend on sociological and institutional factors: on the employees' side, the extent of unionism, the unity or disunity of the workers' organizations, the financial power of the unions, the strictly professional or political-professional character of the unions; on the entrepreneurs' side, the importance of fixed capital, the nature of past contracts with buyers, the degree of collusion with other entrepreneurs, the intensity of foreign competition, in a word, their

[7] J. Robinson, *The Economics of Imperfect Competition* (London, 1936), Book IX, Chaps. 25 and 26.

[8] J. R. Hicks, *The Theory of Wages* (London, 1933).

[9] See our article on "Les facteurs qui déterminent le taux du salaire dans le monde moderne; du prix du travail au revenu du travailleur," *Revue Economique* (July, 1950), p. 129.

entire conjunctural situation. What we must especially insist upon is that entrepreneurs and laborers try to act not only each one upon his own curve—which action may, for example, simply express the discipline exercised by each group over its members—but also *upon the opponent's curve.* Labor unions try to prevent employers from hiring any workers except those from the locality and members of the unions (the "closed shop" clause), they affix a mark called the "label" on products manufactured by good employers, that is by employers paying adequate wages, they oppose the immigration of foreign workers. For their part, employers' associations may organize and favor the immigration of skilled or manual laborers, bring pressure on local newspapers not to publish offers of employment outside the locality, divide their personnel so as to oppose certain groups to others, for example men against women, white against colored, and try to impose membership in company unions, etc.

It is thus obvious to anyone who tries to get past the surface appearance of things that wage rates depend in large measure on positive action which employers' and laborers' organizations exercise or try to exercise, whether directly on each other or through the medium of public opinion or public authority. In the modern world, profit has taken on a collective character; it tends to become, at least in a certain measure, a *class income.* It obviously does an entrepreneur no good to better his methods of production if an increase in wage rates, accepted or suffered by his association, raises in greater proportion his costs of production. Efforts on the level of plant management appear insignificant beside efforts on the level of collective action. A number of entrepreneurs have become aware of this fact and this tends neither to stimulate their activity along the line of internal organization of their factories nor to diminish the intensity of social conflicts.

2. *Toward those who provide capital* entrepreneurs may likewise act in various ways, almost all of which again involve positive or direct action.

To reduce the rate of interest they may reduce as far as possible their demand for money, or indeed exercise pressure on the monetary authorities to adopt a policy of liberal credit and cheap money. To diminish the cost of repaying previous loans they may favor monetary devaluation and, in a general way, favor any measures which will stimulate rises in prices, while they will try to prevent any large-scale action tending to lower them.

Moreover, conflicts may arise between shareholders and management. For a long time we assumed that their interests were identical, the management being mere agents of the shareholders, both groups

eager for profit. But realistic analysis shows that all too often managers act as though they were the sole claimants to profit, the shareholders tending to be transformed to pure capitalists, capitalists who receive not a fixed rate of interest but a remuneration varying *in a certain degree* with the results of the enterprise. If this view is accepted, we must conclude that the managers, the real directors of the concern, may increase their profits by diverting to their advantage those gains which would normally go to the shareholders, whether by allocating to themselves exorbitant salaries or by pursuing policies of internal financing having no aim except that of procuring for the directors of the mother-company new and well-remunerated administrative posts.

The struggle between entrepreneurs and capitalists always seems to be less violent than that between entrepreneurs and laborers. This is because a profound solidarity exists between them, they belong to closely related social classes, and the support of the capitalists is indispensable to the entrepreneurs when they appear before the public authorities to plead for various measures. This fact explains why the attacks are less violent, why the proceedings employed are generally subtle. None the less, the antagonism exists, partial if not total.

3. *Toward the public authorities,* finally, there is exerted very strong pressure aiming at the reduction of those fiscal charges which are a part of the costs of production. The measures taken are very diverse. There is fraud, pure and simple. There is the attempt to secure legal exemptions by influencing the legislature, an attempt pursued to abusive lengths, we must admit, in France, where fiscal laws wind up entirely crippled by provisions designed rightly or wrongly to secure special privileges for certain groups. Finally, there are campaigns against particular duties, financial support of political parties, etc.

Without doubt, all this activity regarding wages, interest and taxes would not, in itself, be any guaranty of high profits. For these to occur, selling prices must not decrease along with wages, interest and taxes. But it is obvious that any action tending to reduce the latter, or, at least, to prevent them from rising, facilitates the quest for profit, for it is always easier to keep selling prices from falling than it is to raise them.

We shall now conclude our exposition by emphasizing certain previously unknown or neglected features which seem to be characteristic of profit.

a. Profit is described here as the *income of those who struggle for it.* Profit is not the income of those peaceful folk who bring something to the market for sale and wait quietly for what they may receive in exchange. Profit is the income of *those who fight and who love the*

battle. It is not the remuneration for the sale of something but the reward of victory.

b. Profit is the result of action performed not in a static world within the limits of a given social mechanism but on the *circumstances themselves,* and on the *underlying structure*. To be sure, in every country, entrepreneurs generally appear in politics as the vehement partisans of the conservative parties. They conceive themselves—quite honestly—as wishing to conserve the established state of affairs, sometimes even to restore a former state. But they have themselves been the most potent force in destroying that former state.[10] As for the present state of affairs, it is quite impossible for them to leave this unchanged without drying up the source of their profits. To be sure, entrepreneurs of today have a tendency, to use Sombart's phrase, to grow fat and sluggish. They are being transformed from conquerors to administrators. But these administrators are always, in their own way, active agents in the transformation of society, dangerous revolutionaries we might say if we were not afraid of scandalizing them! Their purpose is not the same as that of the labor unions. They are less conscious of their purposes than the unions. But, whether they take any account of it themselves or not, by their constant search for increased profits they create a flow of new products, techniques and forms of organization. By their efforts, static competition tends to retreat before oligopoly and monopoly, while the public authority, particularly in times of crisis, constantly increases its area of intervention. Indeed, they try to dominate the public authority itself by carrying out their activity within the very core of the administrative organs of the state, legally or illegally. Wherever one turns it appears that the *quest for profit has been, since the beginning of the 19th century, one of the sources of transformation of the capitalist regime, that profit is the result, in large measure, of positive action exerted on the whole economic environment.*

In this way we may explain why the theory of profit has for a long time represented one of the weakest points of the classical doctrine. That doctrine did furnish an explanation of wages, interest and rent. The explanation, from our point of view, remained superficial because of its refusal to integrate social and institutional factors, because of its willingness to reason within the limits of an environment considered as immutably *given*. The classics none the less gave the illusion of accounting for those incomes. And, in so far as one was willing not to go to the root of things, they accounted for these incomes quite effectively.

[10] See my article on "Problematique de la libre concurrence" in *Wirtschaft und Recht* (1949), p. 73.

In dealing with profit, on the other hand, they were helpless. In a world where the environment remained unchanged, and where competition was, in every sector, absolutely perfect, there would be no place for any regular and lasting profit. The classical economists, at least their more modern representatives, understood this. The explanations they have proposed consist therefore in showing that in fact competition cannot be perfect. The factors of production, claim those who hold the modern theory of surplus,[11] are never perfectly divisible, industrial equipment particularly cannot be varied except by discontinuous amounts. Delays in increasing this equipment are inevitable. From this fact arise those rents which, taken collectively, we call profit. Not everyone can set himself up as the head of an enterprise, as Knight[12] points out in his theory of uncertainty and Landry[13] in his theory of the relative scarcity of entrepreneurs. One needs certain personal qualities, a taste for risk, the financial ability to make the necessary guaranties. The number of entrepreneurs is necessarily limited. Competition among them is restricted. They are able to obtain an income.

But once we have taken this route, we are led either to maintain that entrepreneurs are passive individuals, gathering in those rents which result from the imperfections of competition—an astonishing position to take in a regime which is founded, so to speak, upon the entrepreneur and profit—or we are led to think that entrepreneurs act upon the economic environment in such a way as to try to aggravate the imperfections of competition in order to bring about the existence of those gains which they are supposed to be seeking. This is indeed what Schumpeter suggests in an analysis that is from our point of view too limited. But Schumpeter is not really a classicist since indeed he accepts as a proper subject for discussion the basic premises or data of the economic system. We are for our own part persuaded that the

[11] See M. Amonn, *Grundzüge des Theoretischen National Ökonomie* (Bern, 1948), pp. 132 ff.; Barnett, "The Entrepreneur and the Supply of Capital," in *Essays in Honor of J. B. Clark* (New York, 1927); Fellner, *Monetary Policy and Full Employment* (Berkeley, 1946), pp. 52 ff.; Foster and Catchings, *Profits* (Boston, 1925), pp. 98-169; Gordon, "Enterprise, Profits and the Modern Corporation," *Readings in the Theory of Income Distribution* (Philadelphia, 1946), p. 558; Hahn, "A Note on Profit and Uncertainty," *Economica* (Aug. 1947); Haley, "Value and Distribution," in Ellis, *A Survey of Contemporary Economics* (Philadelphia, 1948); Hawley, *Enterprise and the Productive Process* (New York, 1907); Hart, "Risk, Uncertainty and the Unprofitability of Compounding Probabilities," *Readings in the Theory of Income Distribution*, p. 547; Tintner, "A Note on Economic Aspects of the Theory of Errors in Time Series," *Quarterly Journal of Economics*, 1939.

[12] Knight, article "Risk," *Encyclopedia of Social Sciences; Risk, Uncertainty and Profit* (Boston, 1921), pp. 31-46; "Profit," *Readings in the Theory of Income Distribution*, p. 533.

[13] A. Landry, *Manuel d'Economique* (Paris, 1908); "Sur la théorie du profit," *Revue d'Economie Politique*, 1938, p. 1473.

science of economics which the present generation should construct must be a ***science without premises,*** a science which considers, in the long run, the environment itself as a variable, depending at least partially on the action of economic factors and modified progressively by the functioning of the system. But if that is the case, the theory of profit will necessarily occupy, at least so long as we are in the capitalist phase, a place of the first importance in the new body of theory.

Author's Note on Editorial Comments

We often say that Science knows no Fatherland. By this we mean that scientific laws are valid for every country and that it does not matter what may be the nationality of those who discover them, provided only that they are seeking for the truth.

In the field of economics we confront two obstacles to international scientific discussion. First, the structure of the economy varies from one country to another—*e.g.,* in the degree of concentration of industry, in methods of government, in the reactions of producers and consumers, etc. Consequently, what appears natural to the students of one country may seem strange and novel to those of another country. A factor which plays a decisive rôle in one continent may be quite secondary in another. Secondly, despite ever closer international relations, climates of opinion continue to be different. A method of reasoning which seems normal to some may astonish others. But we must never lose sight of the fact that combining these different methods is an essential factor in progress. Economists, for instance, may well differ on the degree of state intervention which is desirable. But we are all in agreement in thinking that the advancement of our science presupposes the maximum degree of freedom and competition in research and in the exposition of our results.

The American Economic Review informed me that they found my essay interesting and that they would be glad to publish it, but that since I was addressing American readers conditioned by a particular literature and living in a particular environment it would be desirable for me to make certain points with more emphasis than I might if I were addressing my usual European readers. In this connection I have received two notes by editorial readers, which I shall call Note A and Note B. They have been very valuable to me. First, they have enabled me to correct certain errors, but even more, they have led me to understand on what points I risked surprising my American readers.

I have decided, therefore, to summarize them. In Note A I read, "Marchal's aim, as I understand it, is to explain *the income category that would be reckoned as profit by a business man or an accountant,* not the ideal category that economic theorists talk about which separates monopoly rents and wages of management from pure profit. . . ."

This is correct. To be entirely clear, however, I wish to point out that, in my opinion, as Alfred Marshall has emphasized, we theorists should always attach the greatest importance to the conceptions elaborated by businessmen

and accountants. They are the real agents of the economy and they must act upon those conceptions. When we study profit *what we should explain is the income category which businessmen call by that term.* For this purpose we have the right to construct ideal categories, but upon the condition that they lead finally to a complete explanation of the real category, which is alone important.

Now it seems to me that the traditional attitude, which consists of distinguishing in the profits of businessmen a managerial salary, a monopoly rent, etc., while entirely legitimate, is insufficient. It explains *only a part of businessmen's profits* and, in my opinion, *not the most important part.* It points out the factors which act on certain elements of businessmen's profits but leaves unexplored very important factors which act on other elements or on the total situation. In short, the traditional explanation seems to me to be centered on the secondary rather than the primary issues. Why? In my opinion—and I shall try to demonstrate this—because it does not take sufficient account of the structural transformations which are produced, whether slowly or rapidly, in the *entire* economy; because it assumes a static and not a dynamic world, a world where the degree of competition does not change, a world without that intervention of the public authority which is so prevalent in the real world.

In view of these conditions I have formed opinions which the author of Note A has described very adequately. I prefer to leave the last word to him: "Marchal dismisses as unsatisfactory theories that depend on scarcity of entrepreneurial ability since such gains are limited to returns from exploiting a given situation. He also considers Knight's uncertainty theory inadequate because he thinks superior ability or luck in guessing the turn of the market represents a very limited description of the qualities and activities that produce profit. Presumably his conception leaves room for both the factors mentioned above. Marchal, however, puts heaviest stress on those activities of businessmen designed to alter the existing state of markets. This includes, of course, innovating activity of the kind on which Schumpeter based his theory, but it goes beyond it. Marchal would emphasize the efforts of individual firms and groups to alter the political framework to their own advantage in such spheres as taxes, tariffs, subsidies, government contracts, regulatory arrangements, money, prices and inflation, and labor relations."

I am equally in accord with the author of Note B when he says that M. Marchal's article "has little if anything to do with the theory of profit as it is generally understood. His strictures against the existing theory come down to saying that profit theorists would have been better off if they had studied something else."

If I may add one more word, I should say that economic theory has up to the present taken very full account of individual factors, but that it must go further—this is the course which I am taking in my own work—that it must introduce beyond this, into the body of the theory itself, factors of a sociological nature, especially all those activities which are carried out through the care of or by the agency of the State, or which have as their purpose the modification of the whole market structure. (See in this sense

my article on "La Crise Contemporaine de la Science Economique," *Banque* [Jan., 1951], p. 1.)

All these factors certainly operate very strongly in Europe. Do they exercise as powerful an action in the United States? I cannot say. The American readers of this essay can answer this better than I. To be quite frank, I should be most surprised if these factors were completely absent there. It therefore seems to me useful to study them. I leave open two questions: "In what measure are they present in the United States at the present time? Is their importance tending to increase or to diminish?"

The two notes which have been communicated to me seem to admit that, while they are less prevalent than in Europe, they are nevertheless and without any doubt active in the United States.

"In this emphasis, Marchal seems to me to reflect the expanded role of government *everywhere* and possibly to express the difference between the significance of government on the Continent and its importance in the U.S. and U.K. that goes back several generations" (Note A).

"On one hand, Marchal is describing in interesting fashion a type of behaviour by entrepreneurs that is widespread and important. This behaviour is particularly important on the European continent. Indeed, I am enormously more sympathetic toward Marchal's piece than I would have been before my stay in Europe. The difference between Europe and the United States that most impressed me was precisely this difference in the structural organization of the economy. Restrictions upon entry, concerted cartel practices, use of the government to maintain vested positions, and the like, are the rule there and as a result the economy is highly rigid and extremely inefficient. By contrast, we have the purest of pure competition. Marchal gives implicitly a summary of the kinds of practices followed that is reasonably exhaustive and of considerable interest" (Note B).

ON MAXIMIZING PROFITS: A DISTINCTION BETWEEN CHAMBERLIN AND ROBINSON*

By STEPHEN ENKE†

I.—*Introduction*

The recent debate on "marginalism," which it is not intended to resurrect, appears to have overlooked an important distinction between the theories of Professor Chamberlin and Mrs. Joan Robinson. In many respects the ideas—and as Triffin has pointed out, the language also[1]—of these two authors are often very similar. However, it is a mistake to assume that they are analyzing the same subject.[2] In many respects Chamberlin is extending the Marshallian tradition, but with a revolutionary addition; he is studying competition with product differentiation.[3] Logically, as Triffin has pointed out,[4] the advent of product differentiation destroys the concept of industries and groups, and so Chamberlin has really taken a first step towards explaining the competitive adjustments of different product-making firms within the economy. Mrs. Robinson, despite the misleading title of her celebrated book,[5] is concerned only incidentally with competitive adjustments; excepting Chapter 7, she is almost exclusively bent upon analyzing an isolated monopoly or contrasting it with competition. This distinction is important because it affects the ability of each theory to make predictions regarding the typical adjustments of sets of firms.

One of the main potential uses of value theory to the economist is as a predictive aid. This is particularly so, when as is so often the case,

* Many of the ideas in this paper have been inspired by the thoughts and work of Professor A. A. Alchian. (*Cf.* "Uncertainty, Evolution, and Economic Behavior," *Jour. Pol. Econ.*, Vol. LVIII, No. 3 [June, 1950], p. 211 *et seq.*)

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1 Dr. Robert Triffin, ***Monopolistic Competition and General Equilibrium Theory*** (Harvard University Press, 1940), pp. 38-46.

2 This has, of course, been frequently pointed out by Professor Chamberlin. It is interesting to note this is also the opinion of Professor George J. Stigler. (See his "Monopolistic Competition in Retrospect" in ***Five Lectures on Economic Problems***, London School of Economics and Political Science (Macmillan Co., New York, 1950), Lecture 2.

3 ***The Theory of Monopolistic Competition*** (Harvard University Press, 1935).

4 *Op. cit.*, pp. 81-85.

5 ***The Economics of Imperfect Competition*** (Macmillan, London, 1933).

the economist is concerned with public policy. He wants to employ value theory to predict the average effect of this or that autonomous event—and especially of actual or proposed government actions—upon the prices, outputs, employment, etc., of some industrial or regional class of firms. Professor Chamberlin's theory of monopolistic competition—or competition with product differentiation—is in many respects a long-run theory and can make aggregate predictions without resorting explicitly to the assumption that each firm knows how to maximize profits. Mrs. Robinson's analysis of isolated monoply can be used to make predictions regarding aggregate behavior only in so far as it can be relied upon to predict individual behavior; and this in turn requires the assumption that each firm knows in advance how to maximize profits, and succeeds in doing so.

It is the contention of this paper that it is quite unreasonable to suppose that each firm acts to maximize profits. The explanation of this unreasonableness is not simple ignorance of the logic of profit-maximizing theories or the practical impossibility of knowing all the relevant functions of the moment and relating them to one another. It is also that, in the face of future uncertainty, the profit-maximizing motive does not provide the entrepreneur with a single and unequivocal criterion for selecting one policy from among the alternatives open to him. The desire to maximize profits does not constitute a clear and unique behavior prescription; consequently, the economist cannot make individual-firm predictions in the short run. In the long run, however, if firms are in active competition with one another rather than constituting a number of isolated monopolies, natural selection will tend to permit the survival of only those firms that either through good luck or great skill have managed, almost or completely, to optimize their position and earn the normal profits necessary for survival. In these instances the economist can make aggregate predictions *as if* each and every firm knew how to secure maximum long-run profits. This "as if" assumption is far more reasonable in the case of Professor Chamberlin's theory than in that of Mrs. Robinson.

II.—*On Predicting Individual Firm Behavior in the Short Run*

The necessity for assuming that firms know how to maximize profits *ex ante*,[6] in order to use isolated monopoly analysis for predicting individual firm behavior, has been stated by Mrs. Robinson herself. She asserts that (*op. cit.*, p. 6):

> . . . The use of marginal curves for the analysis of monopoly output contains within itself the heart of the whole matter. The single assumption

[6] *I.e.*, know how to act in advance of coming events so as to secure maximum profits.

> which it is necessary to make in order to set that piece of apparatus . . . at work is the assumption that the individual firm will always arrange its affairs in such a way as to make the largest profits that can be made in the particular situation in which it finds itself. Now it is this assumption that makes the analysis of value possible. If individuals act in an erratic way only statistical methods will serve to discover the laws of economics. . . .

The purpose of this section is to demonstrate that it is impossible for each isolated firm to maximize its profits. Hence, even if the economist knows all the relevant revenue and cost functions, he can not predict how each firm will act or react to old or new circumstances. Mrs. Robinson's "single assumption," although often made by others, is extravagantly unrealistic; all that depends upon it is therefore useless for prediction, unless there are reasons for supposing that the theory yields reliable predictions for other reasons.[7]

The fundamental difficulty is that a desire to maximize profits does not provide the entrepreneur with an action prescription. He does not know how he should act just because he knows he wishes to secure maximum profits. When the future outcomes of present decisions are uncertain, motivation does not constitute a criterion for each entrepreneur.[8]

An extreme gambling example may help to clarify the distinction between motivation and criterion. One gambler might be given a hundred dollars and told to make a single bet at a roulette table and "maximize profits"; another player might similarly be given one hundred dollars, but be told to "maximize losses." If they are obedient, both gamblers will play a number rather than a color because, if they are ever to secure the maximum profits and maximum losses that they respectively seek, the longest odds provide profits or losses at the highest rate; if they both played a color, they would be acting in a manner inconsistent with their instructions. Actually, both gamblers might play the same number without disobeying their instructions. Of course, if the gamblers had previously determined that 17 won more often than any other number, and 21 less often than any other number, then the profits-maximizing gambler should play 17 and the loss-maximizing gambler should play 21.[9]

[7] See Section III on the possibilities of leaning on the "as if" justification.

[8] For the purposes of this article, and in order to avoid unnecessary controversy, let us stipulate that the goal of entrepreneurs is maximum profits in the above sense, and not social esteem, personal power, or a quiet life. If a firm has the choice of A or B actions, and it "knows" A will *always* occasion more profits than B, it will be assumed to elect the former policy. Let us also assume that entrepreneurs possess electronic computers and are therefore capable of going through all calculations of the kind described in textbooks.

[9] This statement implies that the past frequency distribution can hardly be attributed to chance and that there are no reasons to suppose that the roulette table has recently been adjusted.

Unless people have beliefs concerning the likelihood of certain future events occurring, a specific motivation cannot provide them with a criterion for selecting one alternative over another. The economist cannot predict how an individual entrepreneur will act if the economist does not know the entrepreneur's assessments of future probabilities. This difficulty is only partly mitigated when all entrepreneurs and all economists have perfect knowledge of the frequencies with which different events have occurred in the past; after all, in our changing economies, almost everyone senses that the past is an unreliable and uncertain guide to the future.

Even if an economist does know an entrepreneur's view of the future, the economist can not normally predict the entrepreneur's decisions, because rational behavior is ambiguous when the entrepreneur is uncertain regarding the future. In reality each possible decision does of course have a unique outcome—but very few entrepreneurs probably assume a single possible outcome for each policy. If an entrepreneur is of a contemplative nature, he may assign various probabilities to different profit outcomes for each alternative policy. If he does not do this, no external observer can hope to predict the actions of a particular entrepreneur. However, even if he does do this, there are grave difficulties.

Let us suppose that each entrepreneur goes through the following mental processes. For *each* possible action he constructs a frequency distribution giving his view of the probability of each possible magnitude of profit or loss. It does not follow that the desire to maximize profits provides him with an unequivocal criterion for rejecting all policies save one that is preferred.

Our entrepreneur may decide he has the following two alternatives: (a) with an expected mean profit of $25,000 and (b) with an expected mean profit of $30,000. Does it follow that he should or would select (b)? The two frequency distributions that yield these average profit values will almost certainly have a different dispersion and this difference can be significant. Suppose the estimated profits range in the case of (a) from $50,000 to minus $25,000 and in the case of (b) from $90,000 to minus $90,000. Might he not, depending upon his individual temperament and personal circumstances, select (a) in preference to (b), despite a lower expected mean value?[10]

It is not a valid objection to point out that *repeated* investment in (b) is a preferable policy to *repeated* investment in (a). The law of

[10] Particularly, an investor of modest means might prefer A because a loss of $10,000 would deprive him of sumptuary satisfactions having a great utility to him, whereas a rich man might experience little change in life following from such a loss; it is often said that rich men and wealthy corporations can alone "afford," in some subjective sense, to furnish "venture" capital. (*Cf.* my *Intermediate Economic Theory* (Prentice-Hall, 1950), Chap. 31.)

averages in this instance does not have the same relevancy for entrepreneurs as it may possess for roulette players. A gambler can often continue to play the same game at the same odds and stakes until he has at least caught up with the "expected" or mean result. But an entrepreneur does not have an opportunity to risk the same investment in the same way at the same odds over and over again. Many investment situations are unique and the passage of time may sweep them away. For these reasons an entrepreneur often cannot say which of several overlapping possible profit distributions is the "best"; he cannot sensibly consider only their means while disregarding their dispersions.[11]

Economists who believe in the meaningfulness of "maximizing profits," as an action prescription, may counter by suggesting that each entrepreneur assigns a utility weight for each several $100 of incremental profit and loss, and makes the maximization of expected utility his aim and test. The more sophisticated may argue that, inasmuch as utility and profits are monotonically related and we are only interested in the *directions* in which entrepreneurs react to autonomous events, this substitution of utility maximization for profits maximization does not seriously affect the ability of value theory to predict the behavior of individual firms. This is of course a *possible* theory.[12]

However, it is not a very convincing theory because there are so many other possible theories, based on alternative suppositions regarding entrepreneurial criteria, that one could support as eloquently. One might assert that entrepreneurs always select that policy which has a subjective profit distribution containing a larger profit area than any other. Or one might attribute a min-max philosophy to entrepreneurs, and assert that they will always select that policy that has the smallest possible loss. Mean utility is only one of several possible criteria.

Moreover, the idea that entrepreneurs seek to maximize expected utility is not a very *useful* theory for predicting the actions of individual firms. An external observer can hardly know the subjective probability distributions in the mind of management or the utility of money to the entrepreneurs involved in decision making. *A fortiori*, if there is no rational way in which a firm can determine the single best policy to follow, an economist cannot predict the actions of a single firm.

Where does this leave Mrs. Robinson? The idea that value theory can proceed in terms of utility rather than profits provides her no

[11] *Cf.* the discussion of Monte Carlo and insurance by Mr. H. D. Henderson in his remarkably compact and stimulating *Supply and Demand* (Pitman, 1921), p. 106.

[12] It is an approach used ingeniously by Milton Friedman and L. J. Savage in "The Utility Analysis of Choices Involving Risk," *Jour. Pol. Econ.*, Vol. LVI, No. 4 (Aug., 1948), pp. 279-304.

escape because she is explicitly concerned with analyzing those actions of firms that will give them maximum profits after the event. Unless the management of each firm hypnotizes itself into believing a unique outcome for each act, and disregards all other possible outcomes, the desire to maximize profits does not provide a criterion for selecting the best policy. Even such successful hypnosis would not of course ensure the securing of maximum profits. And the economist will not know these subjective beliefs of managers concerning the future. It is hard to see how Mrs. Robinson's analysis of isolated monopoly can be used to predict the acts of an individual firm.

III.—*Long-Run Viability Analysis*

It does not follow, because an economist cannot predict individual firm behavior in the short run, that he can never predict aggregate firm behavior in the long run. The greater the intensity of inter-firm rivalry, the more competent is the economist to make long-run predictions of aggregate firm behavior. Perhaps, under certain circumstances, we can predict *as if* firms do in fact maximize profits by consciously equating marginal costs and marginal revenues.[13]

A firm's survival depends usually upon its ability to escape negative profits. If there is no competition, a great many policies—all "good" but only one "best"—will permit an isolated monoply to survive; the fact that such a firm exists is no reason for supposing that it is securing maximum profits.[14] However, if there is intense competition, all policies save the "best" may result in negative profits, and in time elimination; then firms that survive must, through some combination of good luck or good management, have happened upon optimum policies. If environmental conditions are such that surviving and competing firms earn zero profits, we can often assume that they are securing maximum profits: it may then be justifiable to pretend that these firms cleverly and deliberately equated marginal revenue and marginal costs in all the various dimensions.[15] However, this "as if" approach can only be validly used for the special case of intense competition in the long run.

Unfortunately, as is well known, long-run equilibrium is in practice never attained. The processes of long-run adjustment are always being interrupted, before their work has been completed, by some new autonomous event. This has important repercussions. It means that maximum possible profits of the moment may be far in excess of zero profits. It means that the essential condition of continued survival becomes the earning not of maximum profits (including the case of

[13] *Cf.* Friedman and Savage, *op. cit.*

[14] Which is the supposition of Mrs. Robinson.

[15] This is Professor Chamberlin's "tangency solution" case.

zero profits), but of zero or positive profits (including submaximum profits). Moreover, it means that the firms that exist at any moment will include both those that are destined to survive and those that are not. Hence the economist cannot proceed to predict actual aggregate behavior, even for those firms that will survive, as if each one arranged its affairs according to the precepts of marginal analysis. If the environment is changing rapidly and unexpectedly, some poorly managed firms will survive and some well managed firms will expire.[16]

Nevertheless, long-run forces are always at work, even if long-run equilibrium is never quite attained. These long-run forces of adjustment operate in the main through the effect of altered conditions of survival and the births and deaths of firms. In most trades and industries, a considerable number of firms are born and die each year, and the existing population of firms in any locality adjusts in time to the current possibilities of survival.[17]

Consequently, so long as competition is sufficiently intense that zero profits *would* result in the long run, the economist can probably detect the direction in which average adjustments will proceed. He can predict directions of change, if he is willing to overlook the variance of individual behavior, *as if* firms always maximize profits in the end. However, he must supplement this marginal analysis with viability analysis or he may reach false conclusions.[18]

For example, some would hold that a 50 per cent profits tax on corporations, even when it is not permitted to "carry-over" losses, will not alter the output and employment of a corporation. According to marginal analysis, is not a given percentage of maximum profits always better than a given percentage of submaximum profits, and does not each corporate entrepreneur consequently ignore the tax in its decisions? The trouble with this view is that it ignores uncertainty and long-run adjustments. The mean retained profit of all corporations, and the variance of their experienced profit distributions, will presumably be reduced by the profits tax. Consequently, fewer corporations which

[16] In the field of biology we do not make the mistake of attributing outstanding analytical ability to those houseflies that find themselves inside a warm house on a cold night. We realize that flies that are just as clever are dying outside. Those entrepreneurs who survive are those who took a satisfactory course of action (not necessarily the best) for some reason (not necessarily the correct one).

[17] One often fails to appreciate the extent of business fatalities due to preoccupation with the successes of existing firms; such myopia might be lessened if more periodicals bore such doleful names as DEATH or MISFORTUNE.

[18] These statements assume that there are always some survivors. In some trades—*e.g.*, small roadside eating places—there may be such a relatively large and steady influx of new annual capital, supplied by perennial optimists who want to be their own bosses, that optimum policies cannot even ensure survival. Hence, while matters might settle down to some "steady-state" flows, the identity of existing firms may be constantly changing.

now exist are likely to survive, and fewer new corporations are likely to come into existence. An economist naturally cannot predict which corporation will now die rather than live, or will now never be born at all, but he should be able to form a reasonable opinion concerning the incidence of a profits tax upon the number of corporations.[19]

In predicting the consequences of some environmental change, such as a new tax, subsidy, or technology, the economist can only adopt the *as if* approach, and employ marginal analysis, if there is intense competition. However, he can then employ viability analysis also; he can consider the altered conditions of survival that will now, through natural selection, affect the character of firms existing in the future.[20] Will large firms now have a better or poorer chance of survival relative to small firms? Will firms that employ skilled labor now have a poorer chance against firms that employ unskilled labor? A consideration of these questions will indicate whether firms of the future are likely to be larger and employ more skilled labor. The character of the prediction may be the same whether the marginal analysis or the viability analysis is employed, and so the issue may seem rather immaterial; however, the language of the former method seems pedagogically and scientifically inferior because it attributes a quite unreasonable degree of omniscience and prescience to entrepreneurs.[21]

IV.—*"Monopolistic Competition" and "Imperfect Competition"*

Some of the more important differences between the theories of competition with product differentiation (Professor Chamberlin) and isolated monopoly (Mrs. Joan Robinson), as they affect the ability of economists to predict entrepreneurial behavior, can now be indicated briefly.

Professor Chamberlin's theory is primarily a long-run theory; exit and entry and rivalry are an integral part of the theory, and the cost curves of his diagrams are explicitly long-run cost curves. On the other hand, Mrs. Robinson's theory, while it could be long run at times, gives the impression of being primarily concerned with the short run. It has already been pointed out that it is invalid to assume short-run

[19] If a firm, before the imposition of a profits tax, had an annual mean profits expectancy of zero, and a Gaussian distribution of profit and loss possibilities around zero with a standard deviation σ, the expected profit with a 50% tax on profits will be \$-.2 σ. Moreover the new variance will be .53 of the old. Altogether not a very happy prospect!

[20] Some of the consequences of this viewpoint are touched upon by E. A. G. Robinson in a recent book review (*Economic Journal*, December 1950, p. 774).

[21] How many students—especially the more sensible and independently minded—have not objected to the notion that firms do maximize profits? They seem to understand the survival approach far more readily. It is the author's opinion that economics teachers will do well to combine viability and marginal analyses—the survival and "as if" approaches—in the lecture hall.

profit maximization; hence her theory of "imperfect competition" is an invalid tool for predicting individual firm behavior in the short run.[22]

Mrs. Robinson has to assume that each firm succeeds always in making the most profitable adjustment possible to the situation in which it finds itself; Professor Chamberlin does not have to make such an unrealistic and rigorous assumption. Mrs. Robinson has to assume maximum profits, as she does explicitly in the quoted passage above, because "imperfect competition" does not provide any other theoretical *modus operandi*. In the case of "monopolistic competition," no explicit assumption that firms in fact always secure maximum profits is necessary for, besides firm entry and exit, it stresses inter-firm rivalry in terms of price and output, quality, and selling effort. Hence, profits are always being either eliminated or severely confined through competitive pressures, and surviving firms must in the long run adopt either optimum or almost-optimum policies. This contrast possesses significant implications.

"Imperfect competition" is a study of a firm in isolation for the most part; "monopolistic competition" is a study of the competitive adjustments, in many dimensions, of firms that sell differentiated products. Consequently Mrs. Robinson can only employ marginal analysis, whether in the short or long run, but this employment is unrealistic and unjustifiable; nor can she properly employ viability analysis. Professor Chamberlin, stressing the long run, can adopt the "as if" philosophy and make decent approximations with marginal analysis; or he can use viability analysis to secure approximations.[23]

V.—*A Possible Modification of Monopolistic Competition*

It would seem that Professor Chamberlin's theory of competition with product differentiation, with one important modification already intimated by Triffin,[24] provides a useful theory of value that can aid the economist in predicting the behavior of firms.

This vital modification would be to recognize that the group is coextensive with the economy. Chamberlin's revolutionary contribution was his vision of a world of competing and differentiated products. Also, it is well known that high cross elasticities are as often among different kinds of physical products as among products of the same technological class; there may be more competition between Cadillac cars and mink

[22] However, it remains a very useful tool for managers in the short run, for it explains what should be done to maximize profits if the management can only form some unequivocal opinion regarding the future outcome of each policy.

[23] The word "approximations" is used because, according to the original and present version of monopolistic competition theory, the tangency solution of zero economic profits is an extreme possibility and not a theoretical necessity.

[24] *Op. cit.*, p. 85 *et seq.*

coats than between Cadillacs and Chevrolets.[25] Moreover, most firms of any consequence sell many different kinds of products, and use many different kinds of inputs, so that every firm has numerous competitive fronts with many firms, some in quite different product markets. The concept of a relatively small group cannot be incorporated into a rigid theory, and employed to yield theoretical conclusions, without making many heroic assumptions.[26]

The realistic detail of "monopolistic competition" remains, but several artificial assumptions, such as similar cost curves among members of the "group," can then be sloughed off.[27] It will still be true that the product demand schedules that appear to confront a firm will be dependent upon the price reactions of other related firms: this will also be true of factor supply schedules confronting a firm. It will still be true that if one firm makes successful innovations, every other firm will in numerous ways seek to draw closer to it in imitation. It will still be true that the interdependence of firm profits exists through many links on both the output and input side, and through decisions regarding price, quantity, quality, and promotion. Monopolistic competition will then be able to look at only one firm at a time—the kind of firm depending upon the problem—but it will continue to analyze it in terms of its environment.

If one pauses to contemplate all the facets at which a single firm is confronted by the competitive pressures of the outside world, the possibility that the seller of a differentiated product can hope for continuing long-run profits, as distinct from temporary innovation profits, appears very unimportant. Either the possibility will be slight or the profits will be small. If certain firms appear to make substantial profits year after year, it is probably because they have succeeded in making a series of useful innovations, because some original windfall continues to be carried on the books at an obsolete valuation, or because of the ownership of some legal monopoly.[28]

The fundamental competition is between rival organizations of capitalists, investing money against one another, and the fact that they use physically different products and firms as instruments of their warfare is rather unimportant to the fundamental analysis. Unless rival

[25] *Cf.* Chamberlin, *op. cit.*, p. 9.

[26] *Cf.* Stigler, p. 16, *et seq.*

[27] As Chamberlin does; *op. cit.*, p. 110 *et. seq.*

[28] Professor Chamberlin has stressed the possible importance of the copyright protection of brand names as a source of continuing profits (*op. cit.*, Appendix E, p. 113, and elsewhere). This would make it seem that an economy of differentiated products is honeycombed with "monopoly" profits. Despite Coca Cola, and other hoary examples, this notion can easily be exaggerated. There are other tastes than can be cultivated—even in the cola drink trade—and other wants that can be satisfied.

capitalists obtain unfair advantages from the State, or are extremely lucky in some way, the attempts of each to increase his profits is likely to leave the average profits of a year rather nominal. And if there were a moratorium on external change, so that long-run equilibrium were one day attained, it is possible that all survivors would be left with almost zero profits.

If one is willing to adopt the view that long-run profits will closely approach zero, and this seems a more realistic view if one considers each firm competing with the economy rather than with some artificially restricted "group," monopolistic competition can validly proceed as if firms maximize profits in making long-run predictions. Also, to a considerable extent, what probably awaits one firm in the long run probably awaits other firms which in important respects are similarly situated. And so aggregate predictions can be made with some assurance for groups of firms, even though formal analysis involves a single unreal but representative firm, and even though it will still be impossible to predict the action of any specific existing firm.[29]

VI.—*Summary and Conclusions*

A number of distinctions must be kept in mind when confronted by the term "maximizing profits." This term may mean that the entrepreneur desires maximum profits (probable) or that he has always secured maximum profits (improbable). Clearly the motive does not guarantee the result. In fact, the motive does not even provide an entrepreneur with a criterion for preferring certain policies to others, unless he is willing to ascribe a unique outcome to each policy; if he admits uncertainty, and even if he assumes overlapping frequency distributions for each outcome, there is no rational and unambiguous way to determine which is the "best" policy to adopt.

Because all firms are faced by uncertainty, and most entrepreneurs are very conscious of this, an external observer such as an economist cannot hope to predict the actions of any real and specific firm. This inability will be true in the short run and in the long run. It is for this reason that Mrs. Robinson's theory of "imperfect competition" may well be useless for prediction, because it seems to depend upon the unrealistic assumption that each firm in every situation knows the most profitable policy and adopts it.

However, an economist may, if one requirement is satisfied, predict

[29] In practice, when predicting, one must segregate certain "similar" firms, even though in theory there may be no group. These firms will all have some similar property; for example, if one were analyzing the effect of a reduction in wool tariffs, one might consider domestic firms making textiles from wool. The "representative firm" might be an average firm, having the average employment, output, etc., of the wool-using firms of this group.

the likely character of those firms in certain situations that survive in the long run. The requirement is that intense competition prevails, not necessarily among firms selling the same product in the same place, but among rival collections of capital that compete in many overlapping markets. Survivors will then tend to earn small or zero profits. The economist can then employ viability analysis, that is his knowledge of the forces of natural selection in the economic environment, to predict those characteristics that survivors must eventually possess. These survivors, consciously or not, will have made the right decisions; if long-run equilibrium were attained, they would be found, whether from luck, habit, or ability, equating marginal costs and receipts. Under these circumstances an economist can pretend that firms do succeed in maximizing profits; but this is only valid in terms of long-run analysis when there is intense competition. It is for this reason that Professor Chamberlin's use of marginal analysis in his theory of "monopolistic competition" is acceptable as an approximation; surviving firms compete sufficiently that long-run profits must be meager, and when profits are meager there is little latitude for suboptimum policies.

The logical justification for employing marginal analysis in monopolistic competition might be even stronger if the group concept were dropped, and each firm were conceived to be in competition with various firms selling and buying different things in a variety of markets. The obvious fact of product differentiation would then not seem to suggest, so falsely but insidiously, the inevitability of monopoly profits throughout the economy. It would still be possible to make generalized predictions, applicable to a group of similarly situated firms, based on a study of a representative firm that does not exist. The characteristics of survivors can then be predicted but not the fate of any actual firm of the moment. This is one of the paradoxes of value theory.

A Note on the Uses of Marginal Analysis

The following note is appended lest "antimarginalists" should seize upon some of the preceding assertions as grist for their mill.[30]

If an entrepreneur knew all relevant facts and functions with cer-

[30] The following are some of the more important references to the marginal analysis controversy, and to problems arising from uncertainty, that have appeared in the *American Economic Review:* R. A. Lester, "Shortcomings of Marginal Analysis for Wage-Employment Problems" (March, 1946); Fritz Machlup, "Marginal Analysis and Empirical Research" (Sept., 1946); R. A. Lester, "Marginalism, Minimum Wages, and Labor Markets" (March, 1947); Fritz Machlup, "Rejoinder to an Antimarginalist" (March, 1947); H. M. Oliver, "Marginal Theory and Business Behavior" (June, 1947); F. H. Blum, "Marginalism and Economic Policy: A Comment" (Sept., 1947); L. G. Reynolds, "Toward a Short-Run Theory of Wages" (June, 1948); R. A. Gordon, "Short Period Price Determination" (June, 1948); and R. A. Lester, "Equilibrium of the Firm" (March, 1949).

tainty, and also possessed sufficient computational ability, a careful equating of the proper marginal values would always secure him maximum profits. Moreover, marginal analysis would be essential for indicating what facts and relationships had first to be ascertained, estimated, or assumed. The orthodox theory of the firm, granted perfect knowledge of present and future, comprises a set of logical propositions which are in themselves irrefutable. The real question, in view of the actual uncertainty of the future, relates to their applicability.

As a matter of fact, a corporation economist, but not a government economist, should use marginal analysis even when dealing with problems involving the uncertain future. Once he has decided what future values to assume, for important variables and functions, he should introduce them into the formulae dictated by marginal analysis. Having made his assumptions, he needs marginal analysis to show what policies can yield what it is hoped will be maximum profits. If retrospect reveals that the realized profits are submaximum, and that other policies would have been more profitable, that will not be the fault of marginal analysis but of the disproved assumptions that were employed.

The whole situation is somewhat perplexing. As we have seen, the assumption that firms seek maximum profits does not enable the economist to predict the behavior of an individual firm. However, the fact that few if any firms ever do secure maximum profits does not mean that managers should never employ marginal analysis. Quite the contrary appears to be the case. Marginal analysis, given a set of expectations, will tend to give the greatest possible profits if the future confirms the expectations. In so far as the future can be dimly sensed, the use of marginal analysis should increase firm profits more often than not. Mrs. Robinson notwithstanding, it is not necessary to assume that firms do seek and secure maximum profits in order for marginal curves to be validly employed by *entrepreneurs,* however invalid their employment by economists at times.

Marginal analysis of unique future assumptions, that is the logic of profits maximizing, should be stressed even more in Business Administration than in Economics.

SUPPLY AND DEMAND ANALYSIS OF INTEREST RATES: A FURTHER ATTEMPT AT SYNTHESIS

By Arthur H. Leigh*

Most of the theories which have been developed to explain market rates of interest are built around a supply and demand relationship. They differ widely in their selection of the variable or variables the demand and supply of which is taken to determine the rate and in their analysis of the forces underlying supply and demand. This paper attempts to show that a theory of interest rates based upon the supply and demand for loanable funds[1] provides a framework into which most of what is useful in other theories can be integrated and that a theory developed in this way is sufficiently broad in scope to be conveniently applicable to most problems in which interest rates play an important rôle. Its further purpose is to explore the extent to which an essentially partial and non-mathematical analysis of interest rates can be useful and accurate. Completeness in the explanation of interest rates (or of virtually any other magnitude or set of magnitudes in an economy) can be approached only in terms of a general equilibrium system such as that of Walras, but it may be true that beyond a certain point in this direction gains in completeness are more than offset by losses in clarity and manageability.[1a] I shall thus follow the common practice (with its many pitfalls) of selecting from numerous possible variables those which appear most relevant to the present problem.[2]

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[1] For one of the best discussions of interest rates in these terms (known to the present writer), see D. H. Robertson, "Mr. Keynes and the Rate of Interest," *Essays in Monetary Theory* (London, P. S. King, 1940), Chap. I and D. H. Robertson, "Some Notes on Mr. Keynes General Theory of Employment," *Quart. Jour. Econ.*, Vol. LI (Nov., 1936), pp. 175-91.

The "supply of loanable funds" is here intended to mean the flow of purchasing power offered for securities and other claims (including corporate equities) at various possible net rates of return, with the demand for loanable funds having a corresponding meaning.

[1a] *Cf.* A. P. Lerner, "Interest Theory—Supply and Demand for Loans, or Supply and Demand for Cash?" *The New Economics*, ed. Seymour Harris (New York, Alfred A. Knopf, 1948), pp. 655-57.

[2] The reader will note differences among the sections of this paper with respect to the degree of abstraction from reality, *e.g.*, between the discussion of the theory of real capital and the discussion of some of the characteristics of the loan market. These differences, though they may at times be confusing, appear inescapable in a synthesis of different approaches to the problem.

Through most of the following discussion I shall make the common abstraction of speaking in terms of *the* rate of interest. No systematic attempt will here be made to analyze the important and complex interrelationships between different rates on various debt instruments which include components of risk premia, transaction costs, and monopolistic charges in various proportions. The common assumption is that there is sufficient fluidity of funds among different markets and sufficient arbitrage among individuals and institutions which lend and borrow that the whole structure of rates can meaningfully be treated as rising or falling in response to changes in the over-all supply and demand for loanable funds.[3]

The inconclusiveness of part of the discussion to follow is due largely to the lack of adequate knowledge about significant variables and relationships. Perhaps this formulation can serve to indicate more clearly the nature of these inadequacies.

I. *Major Components of the Demand and Supply of Loanable Funds*

The most important element on the demand side of the market for loanable funds is of course the demand by business firms for funds to finance investment and replacement not provided for out of the firm's own funds. There can be no doubt that this demand varies directly with the prospective profitability of real investment generally as estimated by business executives.[4] There is, however, a wide range of possibilities as to the interest elasticity of the demand for loanable funds.

As a limiting case we may assume that entrepreneurs have such perfect knowledge and foresight that they can know future rates of

[3] Statistics indicate a fairly high correlation between long-period trends of interest rates on various kinds of instruments, although it is clear that the various short-term rates are subject to many more cyclical and other short-period influences than are long-term bond yields and other long-term instruments. Historically, short-term rates are markedly influenced by financial crises such as those which occurred in 1893, 1907, 1913, 1920, and 1929, while long-term securities do not reflect such sharp fluctuations. For convenient sources of interest rate and bond yield statistics, see Frederick R. Macaulay, *The Movement of Interest Rates, Bond Yields, and Stock Prices in the United States Since 1856* (New York, National Bureau of Economic Research, 1938); Board of Governors of the Federal Reserve System, *Federal Reserve Charts on Bank Credit, Money Rates and Business* (Washington, D.C., 1941). For further theoretical studies of the relationships between interest rates on different kinds of securities, see Friedrich A. Lutz, "The Structure of Interest Rates," *Quart. Jour. Econ.*, Vol. LV (Nov., 1940), pp. 36-63 [reprinted in *Readings in the Theory of Income Distribution*, ed. Committee of the American Economic Association (Philadelphia, Blakiston, 1946), pp. 499-529] and works there cited; also F. Lavington, "Short and Long Rates of Interest," *Economica*, Vol. IV (1924), pp. 291-303; M. Kalecki, "The Short Term Rate and The Long Term Rate," *Oxford Economic Papers*, No. 4 (Sept., 1940), pp. 15-22; J. R. Hicks, *Value and Capital* (Oxford, Oxford University Press, 1941), Chap. XI.

[4] The theory of the real rate of return on investment is discussed below.

return on all new investment opportunities, that there is a very high degree of mobility of investment, that entrepreneurs attempt to maximize profit, and that all investments are equally risky or that rates of return are calculated after allowance has been made for differences in risk. If the marginal productivity of capital is a function only of the total quantity of capital in existence, then for any relatively short period of time it would be unaffected by the amount of new investment taking place. The result would be an almost perfectly elastic demand curve for loanable funds at the level of the marginal productivity of capital.[5] Businessmen would be willing to borrow to invest (or to invest their own liquid funds) so long as they could do so at a rate no higher than the return they will receive upon this increment of capital.

If, however, the rate of return on new investment were a function not only of the total quantity of capital in existence but also a declining function of the quantity of *new* investment being undertaken during any given period of time,[6] then the demand curve for loanable funds would to that extent be a negatively sloping curve. A negative relationship may exist between the rate of return and the pace of new investment (1) because a large flow of new investment may force up the prices of some investment goods and other costs of capital construction, (2) because there may exist only a limited number of investment plans ready for execution and a relatively long period of time may be required for the working out of profitable new ones, and (3) because at any time in a progressing economy there is not just one prospective yield on real investment but a wide range of prospective yields.[7] Thus, at high interest rates, funds would be demanded only for the more profitable investments and at lower rates more funds would be demanded, some of which would be channeled into less profitable ventures.

At the opposite extreme we may assume that because of great uncertainty about future market conditions or because of the relatively low importance of interest as a cost item in business planning or because businessmen often plan to expand operations for reasons other than the maximization of profit, all investment decisions are based upon

[5] Even though it were assumed that the rate of return on real investment tends to fall as the total stock of capital in an economy increases, the increment in the total stock resulting from the investment of a relatively short period such as a month or even a year would be too small relatively to the total to have any appreciable effect upon the rate.

[6] For a convenient diagrammatic representation of this set of relationships see A. P. Lerner, *The Economics of Control* (New York, Macmillan, 1944), p. 336.

[7] These explanations are, of course, short-run in character. Thus, the negatively sloping curve would have to be interpreted as relating the various rates of return associated with various possible quantities of net investment for the present (short) interval of time, *given* some specific quantity of new investment which had been carried on in immediately preceding periods.

considerations other than the rate of interest and that the volume of investment is therefore unaffected by interest rates. An intermediate set of assumptions appears most realistic. Although the demand curve for loanable funds on the part of individual entrepreneurs may be very inelastic within a significant range, there is probably a maximum rate above which many of them would not borrow, and this maximum rate probably varies between entrepreneurs. The aggregate demand for loanable funds which is the composite of all individual demand functions may therefore have a significant negative slope.[8]

The consumer loan component of the demand for funds is complicated to a greater degree than is the business component by wide variations in the nature and purposes of the loans obtained by consumers (including home buyers). The far wider range of explicit rates in this category of loans is attributable partly to the prevalence of ignorance and irrational behavior on the part of borrowers and partly to the high transaction costs and the "high pressure" or fraudulent tactics of some lenders in this part of the loan market. When consumers borrow to purchase non-durable goods or services in excess of those purchasable with current income, their demand is based, in so far as it is rational at all, upon their choice of a time pattern of consumption which differs from the time pattern of their income and bears no clearly discernible relation to the productivity of real capital. When, however, such loans are for the purchase of houses or other durable

[8] There has in recent years been much controversy and some empirical investigation of the influence of different levels of interest rates on the volume of investment.

One study, the results of which were reported and discussed in a series of Oxford Economic Papers from 1938 to 1940, indicated that interest rate changes exerted only a slight influence on investment decisions, due primarily to the importance of other considerations including risk and uncertainty. *Cf.* H. D. Henderson, "The Significance of the Rate of Interest," *Oxford Economic Papers,* No. 1 (Oct., 1938), pp. 1-13; J. E. Meade and P. W. S. Andrews, "Summary of Replies to Questions on Effects of Interest Rates," *ibid.,* pp. 14-31; R. S. Sayers, "Businessmen and the Terms of Borrowing," *Oxford Economic Papers,* No. 3 (Feb., 1940), pp. 23-31; P. W. S. Andrews, "A Further Inquiry into the Effects of Rates of Interest," *ibid.,* pp. 33-73. *Cf.* also J. Tinbergen, *Statistical Testing of Business Cycle Theories, I: A Method and its Application to Investment Activity* (Geneva, League of Nations, Economic Intelligence Service, 1939). G. L. S. Shackle in his article, "Interest Rates and the Pace of Investment," *Econ. Jour.,* Vol. LVI (March, 1946), pp. 1-17, elaborates upon the relatively great importance of risk, the influence of which tends to overshadow that of interest rates in investment decisions. He suggests that another reason why businessmen tend to deny that interest rates have much effect upon their decisions is that interest rates change less frequently and are not called to the attention of businessmen as frequently or as spectacularly as are other influences such as price changes and changes in technology. He points out, however, that "where, as with homes, doubt concerning future return is small, there is nothing in what we have said which contests the belief that the interest rate can powerfully affect the demand price and thus the pace of investment in a given type of instrument." A shift of emphasis from the influence of interest rates on the volume of credit, the pace of investment and the level of employment and toward its influence on the distribution of incomes and upon capital values is discussed by Henry C. Wallich, "Changing Significance of the Interest Rate," *Am. Econ. Rev.,* Vol. XXXVI (Dec., 1946), pp. 761-87.

equipment, the consumer to the extent that he is acting rationally would refuse to borrow at a rate in excess of the ratio of the expected net service yield to the cost of the durable good.[9] The demand for loans of this type would therefore to this extent be affected by the productivity of real investment in durable consumers' goods. There seems little doubt, however, that rational calculation is less common in the case of consumer loans than in the case of business loans. Nevertheless, it appears safe to assume that the aggregate volume of consumer loans demanded per unit of time is negatively related to the structure of rates and that this demand function, like that of business loans, fluctuates with the level of business activity and business optimism.

The government demand is subject to influences which cannot be reduced to generalization in this context, but federal demand for funds is probably very inelastic during those periods of national emergency when government borrowing is most important. Institutional factors such as the relationship between the federal government and the banking system set government borrowing apart from private borrowing, although it must be considered in this discussion as one of the forces influencing the over-all supply and demand for funds and the level of interest rates. State and local government demand for funds appears to be less interest-inelastic and more likely to fluctuate with the level of business activity than is federal demand and in these respects bears a closer resemblance to business borrowing.

The component of the supply of loanable funds which has received most attention in the more traditional discussion is personal savings in the sense of that part of the flow of personal income not currently spent for consumption goods and services.[10] The Keynesian influence

[9] It may be noted that with competitive conditions and rational behavior, the cost of borrowing to purchase a durable good should be very nearly equal to the cost of leasing a similar unit of the same good, and it should therefore make little difference to the consumer which form of contract he makes apart from the fact that he would be differently affected by changes in prices in each of the two situations.

[10] In the discussion which follows, net personal savings will mean total savings by individuals during a period of time minus total dissaving by other individuals during the same period.

A more important problem of definition arises from the use of current income to purchase consumers' durables such as houses and automobiles. Such disposal of income could reasonably be treated as savings which are used to purchase capital goods, *i.e.*, used for investment. A further problem would then be where to draw the line between the goods the purchase of which would be "current consumption" and those goods the purchase of which would be "investment." These "savings" would, of course, not increase the supply of loanable funds, but they do finance investment for which funds might otherwise have been borrowed. Of course, it may also be argued that current income spent for non-durable consumers' goods serves to finance purchases for which funds might otherwise have been borrowed. Although important for some problems, these questions need no further discussion for the purposes of this paper. I shall treat personal savings used for the purchase of consumers' durables as identical in effect to personal savings used directly to purchase any other type of investment or capital good.

which treats savings and investment as functions of income has to a large extent superseded the Marshallian approach, which treats these variables as functions of the interest rate. Thus, it is now common to assume that the interest rate elasticity of the volume of saving per unit of time is very low within a wide and relevant range. This is not a closed issue. We may still find that some of the critics of the Marshallian assumption that the total volume of saving is positively influenced by a rise in the interest rate (and *vice versa*) may have gone too far. Adequate empirical evidence for a conclusion either way is yet to be found.

The volume of net saving cannot be taken directly as a component in the aggregate supply of loanable funds. A tendency to hoard or to dishoard may intervene between the volume of saving and the supply of loanable funds from this source within any given interval of time.

Hoarding (increasing stocks of cash) by individuals and corporations arises chiefly from one or both of two causes: (1) the holding of funds received as income or received from the sale of other assets until it is convenient or feasible to invest, *i.e.*, purchase or construct some real capital good, or (2) the more conscious and deliberate holding of cash in preference to goods or securities in order to speculate upon a fall of prices or a rise in interest rates.[11] It is here that the "liquidity preference" concept enters the theory.[12]

When an individual saves, he may use that part of his income to

[11] For the most part, this phenomenon can be equally well represented as a fall in velocity ("V") in the older transactions equation of exchange. The most important aspect of the matter is that to the extent that hoarding takes place ("V" falls) without being offset by an increase in the quantity of money, goods are not purchased and income is not created.

[12] The liquidity preference theory of interest taken alone places far too much emphasis upon one particular form in which assets can be held, *i.e.*, upon only one of a great many alternative uses to which accumulated income can be put. Factors underlying the decision to save appear to be as important to the theory of interest rate determination as are decisions to hoard or to dishoard. Keynes provided a correction of earlier theory which overlooked the importance of hoarding and dishoarding, but in placing this factor at the center of his theory of interest, he has in my opinion swung to an opposite and equally inadequate extreme. It should also be noted that the liquidity preference concept when given such a central rôle in the theory of interest requires considerable stretching in order to apply it to the operations of commercial banks which constitute a substantial source of supply of loanable funds.

Among numerous controversial writings on the relationship between the supply and demand for cash balances (the liquidity preference theory) and the supply and demand for loanable funds are the following: J. R. Hicks, *Value and Capital* (Oxford, Clarendon Press, 1939), Chap. 12; A. P. Lerner, "Alternative Formulations of the Theory of Interest," *The New Economics*, ed. Seymour Harris (New York, Alfred A. Knopf, 1948), pp. 634-54; A. P. Lerner, "Interest Theory—Supply and Demand for Loans, or Supply and Demand for Cash?", *Rev. Econ. Statistics*, Vol. XXVI (May, 1944), pp. 88-91; William Fellner and Harold Somers, "Alternative Monetary Approaches to Interest Theory," *Rev. Econ. Statistics*, Vol. XXIII (Feb., 1941), pp. 43-48; Lawrence Klein, "Stock and Flow Analysis in Economics" (and comments following), *Econometrica*, Vol. 18 (July, 1950), pp. 236-52.

purchase a security or a claim, to purchase or construct some real capital good, to repay a debt, or finally, to increase his cash balance. In the first case his savings would constitute a part of the supply of loanable funds, and in the second case he is financing investment without the mediation of the loan or security markets. In the third case he does not necessarily and directly add to the supply of loanable funds since his creditor may hoard the money (assuming that the debt is paid in money), or if the creditor is a bank, the money may simply be destroyed. But debt repayment may indirectly add to the supply of funds by making it possible for the creditor to reloan. To the extent that an individual's savings are actually hoarded in the form of money, however, they do not constitute a part of the supply of loanable funds for that period.[13]

Other major sources of the supply of loanable funds are retained corporate earnings, funds set aside by firms out of sales receipts to provide for the maintenance and replacement of capital, the funds of investment institutions including insurance companies and governmental agencies, and bank credit.

Retained corporate net earnings are in some ways parallel to personal savings as a source of supply of loanable funds, but with somewhat different qualifications. The supply of loanable funds from this source in the schedule sense consists of that part of corporate earnings (plus other liquid assets) which management decides to offer on the security market or decides to lend to affiliated firms at various possible levels of interest rates. These decisions would be affected not only by the size of net income and the amount of it to be distributed as dividends, but also by the desire to hold larger or smaller cash balances and by the amount of real investment which management wishes to finance from earnings.[14] Decisions to retain or not to retain earnings, *i.e.*, dividend policy, may be influenced by market rates of interest in so far

[13] There is a case for treating cash balances as a form of investment and putting the demand for increases in such balances on the demand side of the market for funds rather than treating them as an influence affecting the supply side for any given period. Then the marginal utility of this form of investment could be directly compared with the marginal utility or the marginal productivity of any other form of investment and in equilibrium all of these margins would presumably be equal. This case is strengthened by the extent to which some people or firms (*e.g.*, brokers) borrow money to hold as cash balances for use in their business activities. In spite of these arguments, it appears best for present purposes to treat "liquidity preference" as a phenomenon affecting supply because it is common usage today to define investment as the actual purchase or construction of capital goods—a process which creates income and fits into the theories of employment which center around the savings—investment relationship, and it is convenient in a discussion such as this to associate the demand for loanable funds as closely as possible with investment so defined, allowing, of course, for the influence on the demand side of government and consumer demand for loanable funds.

[14] Current net earnings used by the corporation for its own real investment could as well be included as part of the supply of loanable funds provided the use of such funds

as larger proportions of earnings will be retained the more difficult it is to borrow for expansion. Increases of cash balances over and above those needed in the ordinary course of business are commonly motivated by the desire for security even at the expense of some profit, but are probably negatively related to interest rates. The use of retained earnings to finance real investment has the effect of offsetting a potential demand for loanable funds by an equivalent potential supply. Though funds so used do not appear on the supply side of the loan market, they are probably closely related to it. It is reasonable to suppose that if market rates were to rise above a certain level, some of these funds might be diverted to the loan market, and the converse is probably also true.[15] Similarly, if many firms were to increase the volume of investment financed by retained earnings, the supply of loanable funds on the loan market would be reduced, creating some upward pressure on interest rates. Thus the prospective productivity of real investment has a negative effect upon the supply of loanable funds via alternative opportunities for the use of funds, as well as a positive effect upon the demand for funds.

Business firms provide a further source of loanable funds over and above their net earnings arising from the fact that their provision for depreciation and capital maintenance is not synchronized with their purchase and construction of capital goods for replacement. That part of gross revenue which is retained to offset the wearing out or obsolescence of real equipment may be held in the form of cash, or may be offered on the security market until such times as it is expedient to purchase replacement equipment. In the latter case, it constitutes a part of the supply of loanable funds. Again, the relevant decisions are based in part upon expectations of future prices and interest rates and in part upon general depreciation policy. It is quite likely that the quantity of such funds offered on the security market will be positively related to interest rates.[16]

is included in the demand for loanable funds, the corporation here being regarded as lending to itself. This procedure is not followed in the present paper because I believe that it is clearer and simpler for present purposes to "cancel out" these quantities.

[15] It is probable that at given market rates of interest, most businessmen would be more willing to invest in assets with a given prospective yield if such an investment could be financed from retained earnings than they would be if they had to resort to the loan market. The relationship between market rates, prospective rates of return on real investment, and the use of retained earnings is thus by no means a perfect one.

[16] The fact that the setting aside of revenue to provide for depreciation is not synchronized with the purchase of replacement equipment sometimes leads to a contraction or an expansion of incomes, depending upon whether expenditures for replacement fall short of or exceed depreciation allowances out of current revenue. Theoretically, if the offer of such funds on the loan market were to encourage increased purchases of goods by other persons, the depressive effect of the former situation may be slightly alleviated, as compared, at least, to the retention of such funds as cash balances.

Little need be said about institutional savers other than credit-creating banks beyond recognizing their existence in the market for funds. A net flow of savings into savings banks and an excess of total premium payments to insurance companies over benefits paid out can be treated merely as a part of individual saving, the flow of the latter being very little affected, at least within short periods, by changes in interest rates.[17] This flow of savings plus any retained earnings on their assets plus dishoarding or minus hoarding at various possible levels of interest rates constitutes the supply of loanable funds from this source, and this supply is probably a very inelastic function with respect to interest rate changes.[18] Governmental lending agencies such as the Reconstruction Finance Corporation, the Export-Import Bank, and the agencies which lend to farmers provide a supply of funds which is no doubt also very interest inelastic and which is determined primarily by political influences. By channeling funds to (or from) particular markets they probably affect the structure of rates to a far greater extent than they affect the general level of rates.

Of much greater importance to the theory being developed is the rôle of credit-creating commercial banks. Under present conditions in the United States, banks provide a highly elastic supply of loanable funds for many types of borrowers within rather wide limits set by the policies of the government and the Federal Reserve System as well as by the individual bankers themselves. The most important distinguishing feature of this source of loanable funds is that within the wide limits of monetary and banking laws and policy new purchasing power to supply the needs of borrowers both for purposes of investment and of consumption can be created without any deliberate saving from income or any dishoarding by individuals or institutions. From this fact follows the well-known and much discussed rôle of the banks in financing relatively rapid expansion and contributing through contraction of credit to equally precipitous contractions in national income. When planned investment exceeds planned savings, the expansion of bank credit together with any tendency to dishoard constitutes the source of funds for the expansion of money income which increases savings. This process, combined with the unplanned dis-investment brought about by increased sales resulting from expanded income,

[17] This short-run inelasticity of supply with respect to interest rates is not due so much to insensitivity or indifference to interest rate changes (*i.e.*, the ratio of benefits to premiums) as to the fact that the proportion of *new* insurance contracts on which decisions may be affected by this ratio is very small compared to the total of policies outstanding on which the insured is paying premiums to which he committed himself sometime in the past.

[18] The supply of credit from institutions of this type may be influenced by the effect of interest rate changes upon the value of that part of their assets which are held in the form of fixed interest bearing securities, such as bonds.

moves the aggregate flow of savings and the aggregate flow of investment toward equality.[19] It is difficult to generalize briefly, either on theoretical or empirical grounds, about the character of the supply curve for bank credit if, indeed, the idea of a curve or function is applicable at all to this source. For many types of loans there are conventional rates which change rather seldom. Some would-be borrowers are refused loans outright rather than charged higher rates, a kind of rationing system. In other cases different rates are charged different customers at the same time, due to differences in estimated risk, in the terms of the loan contract, and similar considerations. In the absence of evidence to the contrary, it seems reasonable to assume that for those prospective borrowers to whom the banks are willing to make loans at all, the supply curve for such loans is very elastic to some point determined by the reserve position of the banks in general and after that point is reached, the curve may become very inelastic. Even when "loaned up," banks may tend to refuse loans outright to the less credit-worthy borrowers while continuing to lend at the old rates to more-credit-worthy customers. Supply of bank credit may be increased or decreased by the deliberate policy of banking authorities who are supposedly motivated at times by efforts to stabilize the flow of incomes and the level of employment.[20]

II. *Income Changes and the Demand-Supply Relationship*

Mr. Keynes criticized and rejected the "classical" theory of interest rate determination which treated the rate as a market price determined by the intersection of a curve relating the flow of saving to the interest rate and another curve relating the flow of investment to the interest rate. He argued that the relationship between a demand curve and a supply curve for savings cannot determine the interest rate because they are not independent of each other. If, for example, the demand for funds increases so that at current interest rates investors and others

[19] If this expansion begins in a period of considerable unemployment, then production increases more in absolute terms than does consumption. If, however, it occurs in a period of full employment, consumption is reduced primarily by the resulting fall in the purchasing power of a given money income. Thus, money saving becomes real saving which is not necessarily voluntary on the part of the real savers.

[20] As credit-creating banks assume an increasingly important rôle in the supply of loanable funds, the applicability of the concept of "time preference" to the theory of the interest rate becomes less and less apparent. Whatever the nature of the decisions which determine the supply of bank credit, it is difficult indeed to think of them as governed by a subjective preference for present over future goods of like kind and quantity. Time preference, or whatever we wish to call influences which determine the amount of voluntary individual saving, has a bearing upon the general problem only in so far as it affects the quantity of bank-financed investment which can be carried on without inflation and "forced saving."

wish to borrow a larger quantity of funds than savers wish to lend, the interest rate does not merely rise to the intersection of the new demand curve and the original supply curve. Any increase in the quantity of investment which actually takes place without at least an equal and simultaneous fall in consumption will generate an increase in the flow of money income (which may or may not be accompanied by an increase in real income) and this in turn increases the supply of money savings. Thus, no determinate solution to the problem of explaining the interest rate is possible in these terms.[21]

Although the supply of loanable funds is clearly not the same thing as the "supply of savings" (*i.e.*, the volume of money savings per unit of time at various possible interest rates), induced changes in money income and their effects on the supply and demand functions call for discussion in connection with the loanable funds theory of the interest rate. This line of criticism can, in fact, be carried a step further by pointing out that if an increase in investment associated with an increase in the demand for loanable funds leads to rising commodity prices via an increase in money income at a time of full employment, this rising level of prices will alter the various expectations which underly the supply and demand functions for loanable funds. Rising prices may, for example, further increase the demand for funds by creating more favorable profit expectations. They may reduce the size of the cash balances which people wish to hold and reduce the willingness to save by creating expectations of a further fall in the purchasing power of money. On the one hand the general rise in prices may increase the willingness to lend by reducing (at least in the minds of lenders) the risk of default, and on the other hand it may reduce the willingness to lend through the purchase of fixed-interest-bearing securities and claims (as compared with the purchase of equities and real goods). Further, if interest rates are observed to be rising (security prices falling), this trend will affect expectations of future interest rate movements which will in turn affect the supply and demand for loanable funds and hence interest rates. In short, the problem is inherently general and dynamic while the Marshallian supply and demand analysis is partial and static.[22] But does a very similar criticism not apply to many other common uses of Marshallian partial analysis, particularly in those cases where the market in question is so large relatively to the whole

[21] *Cf.* J. M. Keynes, *The General Theory of Employment, Interest, and Money* (New York, Harcourt, Brace and Company, 1936), pp. 177-82.

[22] *Cf.* J. A. Schumpeter, *Business Cycles* (New York, McGraw Hill, 1939), Volume I, p. 78. "Of course, there is very little meaning in an application of Marshallian demand and supply curves to this case. They do not illustrate but rather obscure the nature of the relation between saving, investment, and the rate of interest. Since this relation is the net result of the interaction of all the variables of the system, it can be expressed only in terms

economy that changes in price and quantity within it have a significant effect upon other markets and upon such aggregates as the flow of money income? Markets for labor, for foreign exchange, and even for some important commodities in some countries may serve for illustration. The remainder of this section is an attempt to evaluate the usefulness of the supply and demand relationship as a point of departure for what is readily conceded to be a dynamic problem.

At any point of time, interest rates (prices of securities), in so far as they are not "administered" and are free to move, are determined by immediate competitive bidding on both sides of the market, *i.e.*, by supply and demand in the immediate market sense. The quantities of loanable funds demanded and offered are respectively determined by many factors, including interest rates and expected interest rates, money income and expected money income, prices and expected prices (both relative prices and the general price level), psychological attitudes toward risk and toward consumption versus saving, and generally by numerous other influences, some of which were mentioned in Part I above. Since we are here interested in analyzing interest rate determination, we select this variable, the interest rate, for particular attention and relate it to quantities of loanable funds demanded and supplied in the usual Marshallian *ceteribus paribus* functions.

As a first step toward the general and the dynamic, we may introduce another variable, changes in money income together with their relevant effects, into the simple supply and demand analysis, and in so doing, examine the Keynesian objection outlined above. Assuming for the moment a single loan market with a homogeneous credit instrument, suppose that an initial situation in which a demand curve and a supply curve establish a rate of interest which clears the market is disturbed by an increase in the demand for loanable funds arising from optimistic expectations about new technological discoveries. Unless the supply of loanable funds is infinitely elastic, or unless the supply curve moves to the right *simultaneously* with the movement of the demand curve and to

of the Walrasian apparatus. From the attempt to do so by means of two independent single-value functions of the rate of interest nothing but caricature can result."

Criticism of the Keynesian liquidity preference theory of interest on similar grounds, *i.e.*, that it uses static analysis for an essentially dynamic phenomenon, is expressed by Leontief as follows: ". . . under stationary conditions, (*i.e.*, a situation in which none of the relevant economic variables such as the rate of interest, prices, etc., are changing or are expected to change over time) nobody would hold any money for speculative purposes; that is, that in such a situation M_2 would be *identically* zero. But this is the crux of the whole matter. If the foregoing observation is correct, then in a truly stationary situation, the cornerstone of the Keynesian theory of interest—the direct relationship between the quantity of money and the rate of interest—falls to the ground. (M_1 is assumed not to be a function of p.)" (W. W. Leontief, Comment on Ira O. Scott, Jr., "Professor Leontief on Lord Keynes," *Quart. Jour. Econ.*, Vol. LXIII [Nov., 1949], p. 568.)

a degree at least sufficient to offset the influence of the increase in demand, the rate of interest will rise. I consider it reasonable to suppose that if an increase in supply is normally to be expected to result from an increase in demand, that increase in supply will not occur simultaneously with the increase in demand but only after a significant interval of time during which the funds borrowed are actually spent for investment goods and some part of the new money income thus created is offered on the loan market. These changes do not, of course, occur in sudden large jumps but work themselves out in a continuous process through time.[23] The market rate of interest established by the supply and demand functions here under consideration is thus a moving equilibrium rate changing continuously through time as do the supply and demand functions which immediately determine it. Just as an increase in demand for funds may *after a time* affect the supply of funds via money income changes, so it may *after a time* affect supply via changes in expectations which may be induced by observed movements of the interest rate or of prices which can in turn be attributed to the assumed initial increase in demand. At any point of time, however, a meaningful determinate solution to the interest rate can be obtained in terms of the supply and demand for funds and the influences which underlie these functions.

A simplified summary statement of the influence of money income changes upon the solution of the problem of interest rate determination together with some references to the rôle of elasticity conditions may help clarify the present argument. Let us once more assume the initial increase in the demand for funds. Note that the supply of loanable funds arises not merely from individual and corporate saving as discussed in Part I above, but also from dishoarding by individuals and corporations (*i.e.*, the offering of formerly idle cash balances for loan) and from credit creation by banks. In an extreme limiting case where the quantities of funds offered by all of these components of supply as well as the volume of investment[24] are all independent of the rate of interest, the demand and the supply of funds would both be completely inelastic. If, as has been assumed, there occurs an increase in the demand for funds for the purpose of investment with the result that the quantity demanded exceeds the quantity supplied, some investment plans could not be financed. Whether aggregate money income rises, falls, or remains the same subsequent to the assumed increase in the demand for funds depends upon whether the investment that can be financed during the

[23] The discussion immediately to follow could of course be set up in the form of period analysis. I have not done so explicitly because I do not wish to obscure the essentially continuous character of the processes concerned.

[24] We shall, for the moment, ignore consumer borrowing for non-durable goods and services.

given initial period exceeds, falls short of, or equals planned or intended saving for the same period of time, *i.e.*, whether the algebraic sum of net dishoarding and net bank credit creation is greater than, less than, or equal to zero respectively. If income changes, the inelastic demand and supply curves will accordingly shift over a period of time. In this situation there is no determinate solution to the interest rate problem in terms of supply and demand, and the rate of interest would have no equilibrating influence.

If any or all of the commonly assumed relations exist between the interest rate and the components of supply and demand, there is a determinate solution, *i.e.*, there is a level of the interest rate which would clear the market for funds and the interest rate plays an equilibrating rôle. These assumptions are that saving and the available quantity of bank credit vary directly with the interest rate and that investment and the desired size of cash balances vary inversely with the interest rate. Again, whether money income subsequently rises, falls, or remains the same as a result of the initial increase in the demand for funds depends upon whether the investment which actually occurs at the new, presumably higher, interest rate exceeds, falls short of, or equals planned saving (at the new interest rate but the initial level of money income) for the interval in question, *i.e.*, whether net dishoarding plus net creation of bank credit is greater than, less than, or equal to zero. If and as money income subsequently changes, the supply and the demand curves for loanable funds and hence the rate of interest will also change.

Thus, it is clear that the rate of interest established at any point of time by the demand and supply of loanable funds is not a general equilibrium solution and is not likely to continue unchanged for long unless at that rate planned saving equals planned investment and, in fact, unless every market and every magnitude is in a state of equilibrium.

The introduction of changing expectations and their effects adds even greater complexity to the problem than does the introduction of money income changes, and no attempt will here be made to treat them exhaustively, although I shall refer to them again below. All the components of the supply of and the demand for funds are affected by them, and they may play their part as initiating disturbances in the market for funds or they may themselves be the result of a change in interest rates or in security prices. The supply and demand for some securities are at times dominated by speculative trading based upon expectations of rising or falling security prices rather than upon the intention to earn interest or to borrow for real investment.[25]

[25] *Cf.* R. M. Goodwin, "Keynesian and other Interest Theories," *Rev. Econ. Statistics*, Vol. 25 (Feb., 1943), pp. 6-12, for a discussion stressing the importance of expectations

It is obvious that when influences such as these are accounted for, a great many possible patterns of effects can follow from a given initial disturbance, a fact which increases the difficulty of developing any theory of an equilibrium rate of interest.[20]

III. *Changes in the Quantity of Money, Prices, and Interest Rates*

A question which is very closely related to the foregoing discussion and to which in the light of that discussion there appears to be no single general answer is that of the influence of changes in the quantity of money upon the rate of interest. Again, a set of answers can be formulated, each appropriate for a different set of assumptions. Much depends upon the way in which new money is introduced into the system and upon the direction of its expenditure, and upon the expectations which are induced. Immediate effects differ from long-run effects.

Let us begin by assuming that wages and prices are flexible to the degree usually assumed in Marshallian economics, *i.e.*, sufficiently flexible to adjust toward a position of equilibrium within a reasonably short period of time after some change or disturbance.

If the increase in the quantity of money is the result of a federal deficit with expenditures made directly as wages to government employees and as payments for public works and the like, then there will be a direct increase in the demand for labor and commodities and an increase in incomes. If this expanded money income (including multiplier effects), together with the improved cost-price relationships which may accompany it, improves the general business outlook, it may increase the demand for loanable funds by stimulating new real investment, thus tending to raise the interest rate. On the other hand, increasing money incomes will tend to increase savings, and if the stock of money which has been created exceeds the quantity people wish to hold at the rising level of money income, the effect will be to increase the supply of loanable funds, which will tend to lower interest rates. Thus, the immediate or short-run effects would depend upon the relative strength of these two opposing influences and upon the elasticity conditions which have been outlined in Part II above. If price rises become apparent and if the public generally projects this trend into the future, expectations of a fall in the real value of assets fixed in terms of money may make people more reluctant either to hold cash or to purchase securities of fixed dollar yield. This influence may force

about future interest rates as determinants of the desire to hold cash balances or to purchase securities.

[20] See Part V below for further discussion of the equilibrium concept as it applies to interest rates and to the rate of return on capital.

borrowers to offer better terms if they are to induce lenders to purchase securities in preference to real goods or equities. If, in the longer run, prices rise in proportion to the increased quantity of money so that real income has not appreciably increased, if wages and other costs follow the upward trend thus removing the favorable cost-price relationship, and, finally, if the cash balances people wish to hold bear the same proportion to money income as before, then there will probably be no permanent increase in business activity and no appreciable long-run effects on the interest rate. The rate may not return to the level at which it stood prior to the introduction of the new money, but on *a priori* grounds it is impossible to determine whether it would be higher or lower.

If the new money is injected into the economy by open-market purchases of securities by government or the banking system, or by the making of loans to business[27] in a way which amounts to a direct increase in the supply of loanable funds, the immediate effect will be a downward influence upon interest rates. Other effects, and particularly those of the longer run, will no doubt be much the same in this case as in the preceding case.

If wages or prices or both are rigid for long periods of time, then the short-run effects of changes in the quantity of money discussed above will be correspondingly prolonged. An increase in the money supply brought about by direct governmental expenditures for goods and services may in this case stimulate business activity through expanded volume and through the absorption of unemployed resources. If wages and other costs are rigid while prices are not, this stimulating effect is enhanced by the improved cost-price relationship. In either case, the demand for funds would be increased. If the new money is injected into the system in a way which directly increases the supply of loanable funds, the immediate influence on interest rates may be downward, but even under conditions of rigid prices and/or wages, this effect may be very short-lived, and the stimulating influence upon business activity and upon investment which may soon follow would be likely to exert an upward pressure upon interest rates, at least after the inflow of money has stopped.

Generally speaking, the flexibility or rigidity of prices and wages appears less important to the analysis of the influence of changes in

[27] Banks or government agencies could induce businessmen to borrow increased quantities of funds either by accepting poorer risks or otherwise easing the "rationing" of credit, or by offering loans at lower rates of interest. If the latter method is resorted to, the increase in the quantity of money brought about in this way depends upon a prior lowering of rates unless there should be a simultaneous increase in the demand for loanable funds, in which case the increased quantity of money is not a cause but an effect of increased investment and may be thought of as having prevented or limited a short-run rise in rates rather than having lowered rates.

the quantity of money upon the interest rate than does the way in which the new money is introduced and the direction of expenditures subsequent to the influx of the new money. If people receive additional money, they can either spend it for goods and services, purchase securities, or hoard it. The first choice has a short-run upward influence; the second, a short-run downward influence; and the third, no clear influence at all. Throughout the entire analysis, it is clear that short-run effects of changes in the quantity of money upon the interest rate are more important than long-run effects, the latter in most cases being negligible or unpredictable.[28]

IV. *Elements of a "Real" Theory of Capital and Interest*

A sound and workable analysis of the nature and scope of real capital, the rôle of capital in the productive process, and the nature and measurement of the rate of return on real capital has been worked out in recent years.[29] Although many aspects of the theory of real capital are still controversial, there appears to be increasing agreement on its main outlines. Only the briefest sketch of the theory is necessary for the present purpose of relating it to the monetary and loan market theories of interest discussed elsewhere in this paper.

1. The real rate of return on capital is defined and measured by the marginal productivity of new investment, expressed as the ratio between a net prospective yield and the minimum cost of constructing a new asset capable of producing that yield. Investors will channel their funds into those areas in which the prospective rate of return is maxi-

[28] Where the quantity of money is deliberately increased for the purpose of achieving a higher level of employment, I should place greater reliance upon its direct effect upon the demand for goods and services both for investment and for consumption and upon the improvement in the cost-price relationship which it would probably bring about than upon its supposed effect on incomes via reduced interest rates and increased investment.

[29] Most noteworthy among the contributions to the real theory of capital and interest which have been made during the past thirty years are those of Professor Frank H. Knight, whose development of the theory has appeared in numerous journal articles, among the most important of which are the following: "Neglected Factors in the Problem of Normal Interest," *Quart. Jour. Econ.*, Vol. XXX (Feb., 1916), pp. 279-3[illegible]; "Professor Fisher's Interest Theory: A Case in Point," *Jour. Pol. Econ.*, Vol. XXXIX (Apr., 1931), pp. 176-212; "Capitalistic Production, Time, and the Rate of Return," *Economic Essays in Honor of Gustav Cassel* (London, George Allen & Unwin, 1933), pp. 327-42; "Capital, Time, and the Interest Rate," *Economica,* Vol. I N.S. (Aug., 1934), pp. 257-86; "The Theory of Investment Once More: Mr. Boulding and the Austrians," *Quart. Jour. Econ.*, Vol. L (Nov., 1935), pp. 36-37; "The Ricardian Theory of Production and Distribution," *Canadian Jour. Econ. and Pol. Sci.*, Vol. I (1935), pp. 2-25, 171-96; "Professor Hayek and the Theory of Investment," *Econ. Jour.*, Vol. XLV (Mar., 1935), pp. 77-94; "The Quantity of Capital and the Rate of Interest," *Jour. Pol. Econ.*, Vol. XLIV (1936), pp. 433-63, 612-42; "Some Issues in the Economics of Stationary States," *Am. Econ. Rev.*, Vol. XXVI (Sept., 1936), pp. 393-411; "On the Theory of Capital in Reply to Mr. Kaldor," *Econometrica,* Vol. 6 (January, 1938), pp. 63-82; "Diminishing Returns from Investment," *Jour. Pol. Econ.*, Vol. LII (Mar., 1944), pp. 26-47; *Ethics of Competition* (New York, Harper Bros., 1935), Chap. X.

mum, allowing for differences in risk and in other costs, thus tending to bring such rates into line with prospective rates in other fields and to establish a general level of rates of return. This quest by investors for maximum rates of return serves also to allocate resources into those fields where they can be most efficient in satisfying effective demand.

2. The most useful concept of real capital includes all of the productive or service-rendering agents which are subject to ownership and capitalization, the major exclusion here being human beings.[30] This inclusive definition is justified because of the similarity with which all such assets are treated with respect to accounting, measurement and valuation, and allocation, differences among them in such respects as durability and mobility being differences only of degree. Differences in durability and mobility are important particularly in their bearing upon the ease and quickness with which resources can be disinvested and reinvested, but such differences do not constitute a useful basis upon which to exclude some assets (*e.g.*, "land") from the capital concept.

3. The definition and measurement of capital as a quantity requires the use of a value numeraire in terms of which the heterogeneous physical capital goods of which it consists can be reduced to a common denominator. To accomplish this valuation or capitalization of an asset, its net return per year (or other unit of time) must first be imputed (*e.g.*, by the use of the marginal productivity principle if it participates with other agents in a process) and its net imputed value yield (after full allowance for depreciation out of "gross"[31] imputed value yield) must then be divided by the appropriate going rate of interest to ascertain capital value. This process is thus an essential part of the pricing system, though conceptually, the theory of capitalization can be carried out without a market pricing mechanism such as we know it, provided some basis for valuation can be established.[32]

4. A sound and sufficient explanation of the accrual of net yield on capital is the fact that if a given amount of current income is devoted to the construction of a new asset, the flow of net income is subsequently increased by some measurable amount for an indefinite length of time. It is important for the purposes of accurate accounting, how-

[30] Even free human beings as productive agents have many of the characteristics of capital as here defined. (*Cf.* James R. Walsh, "The Capital Concept Applied to Man," *Quart. Jour. Econ.*, Vol. XLIX [Feb., 1935], pp. 255-85.)

[31] "Gross" is here intended to mean the full increment to the value product of a joint process imputable to a marginal unit of a given type of capital good from which depreciation on that capital good must be deducted periodically to ascertain its net value yield.

[32] For a more complete analysis of the problem of capital measurement than can be undertaken here see especially Knight, "The Quantity of Capital and the Rate of Interest," cited above.

ever, always to provide for full maintenance of the capital asset out of its gross imputed yield before measuring the net return in question, whether or not the particular asset is to be maintained or replaced. In measuring its return accurately, capital must thus be treated as though it were to be maintained in perpetuity. There would otherwise be no way of comparing the yield of two or more different assets which have different individual durabilities, and no way of knowing whether current consumption is being carried on at the expense of a diminution of capital value. The subjective "time preference" concept is unnecessary for the explanation of the accrual of net return on capital, though it (or its Keynesian counterpart, the marginal propensity to consume) may at times be helpful in explaining the quantity of net capital formation which may be possible within any given period of time without inflation.[33] An increased quantity of capital increases the flow of net income, not because of any supposed lengthening of a time interval between the functioning of certain "original" factors of production and the final consumption of the ultimate product, but merely because it represents an increase in the quantity of productive agents cooperating in the productive process. The concept of periodicity in the over-all productive process plays no essential rôle in the present theory which looks upon that process as continuous, even though individual components either in the sense of physical capital goods or individual identifiable funds of capital value in a more abstract sense may have a reasonably ascertainable or definable beginning and end in time.[34]

V. *An Equilibrium Level of Rates*

If, as is usually supposed, there is a tendency for an equilibrium to be established between the level of "real" rates of return and money

[33] Professor Hayek, in his *Pure Theory of Capital*, relegated "time preference" to what seemed to be a secondary rôle in interest rate determination, indicating that it places a limit upon the historical downward trend of interest rates beyond which people would be unwilling to save over and above necessary replacement of capital and, thus, beyond which no further net accumulation could take place unless something changed either the net rate of yield or the rate of time preference. He agreed that until this ultimate long-run stationary equilibrium is reached, the net productivity of capital is the principal determinant of net rates of return, with time preference affecting the pace of accumulation. *Cf.* F. A. von Hayek, *The Pure Theory of Capital* (London, Macmillan, 1941), Chaps. 17 and 18. In a later article he withdraws this concession, at least in part, giving time preference (defined as "the relative strength of the demands for present and future goods respectively") a more important rôle in the short run, particularly in cases where the pace of new investment changes significantly within a short period of time. *Cf.* "Time Preference and Productivity: A Reconsideration," *Economica*, Vol. XII N.S. (Feb., 1945), pp. 22-25. E. Victor Morgan gives time preference a central rôle in his recent article "Some Thoughts on the Nature of Interest," *Oxford Economic Papers (New Series)*, Vol. I, No. 2 (June, 1949), pp. 182-90.

[34] *Cf.* K. E. Boulding, "The Theory of a Single Investment," *Quart. Jour. Econ.*, Vol. XLIX (May, 1935), pp. 475-94.

or market rates of interest, is it most useful and realistic to think of the two levels mutually adjusting to a common level or to think of one of them adjusting to and therefore being determined by the other? In the foregoing discussion I have already alluded to the fact that higher prospective real rates of return tend to raise market rates by increasing the demand for loanable funds and by raising the offer price of such funds through their positive effect upon immediate and anticipated alternative opportunities for the use of the funds of potential lenders. Marked differences in market rates between different countries or geographic areas may similarly be explained in part at least by differences in real rates of return and their effects upon the supply of and the demand for loanable funds. But another important cause of high market rates of interest and a general shortage of loanable funds may be poorly organized and unstable political institutions and the risk and insecurity of property and contracts which accompany them. These conditions may thus be primarily responsible for the lack of real capital relatively to population and natural resources, which serves to explain the high real rates. To put the matter more generally, high market rates resulting from any cause other than high real rates of return may perpetuate high real rates by preventing the net capital formation which could reduce them over a period of time. Thus the line of causality is not always entirely in the one direction from real rates to market rates.

Very briefly stated, the degree to which market rates depend upon the level of real rates of return as discussed in the previous section will vary with the following conditions: (1) the degree of correlation between changes in prospective real rates and the demand for loanable funds, a condition which will be significantly affected by the state of business optimism and the willingness of businessmen to take risks and to face the uncertainty of holding and managing business assets; (2) the elasticity of the demand for loanable funds for the purpose of real investment and the inelasticity of the supply of loanable funds;[35] and (3) the magnitude of the demand for funds for real investment in proportion to the demand for funds for all other purposes. It should, of course, be remembered that risk, transaction cost, and speculative demand for securities are at times strong enough to overshadow actual

[35] This condition is merely an application of the principle which is true of any market that if the demand curve is very elastic (infinitely elastic), movements of the supply curve will not affect the price which is more or less set by the level of the horizontal demand curve, regardless of the position of the supply curve. (*Cf.* Section I above for a discussion of factors influencing the elasticity of the demand curve for loanable funds.) It may be noted that if for any reason the supply curve for loanable funds is horizontal (*e.g.*, in the event that it is an "administered" rate set by the government or the banking system), then real rates would either tend to adjust to the market rate so established or bear no definable equilibrium relationship to it.

prospective yields in influencing security markets and should therefore not be ignored in discussions of market rates.[30]

The equilibrium relationship between real and market rates is in fact only a part of the broader and much discussed question of an equilibrium rate of return on all forms of assets, or rather, an equilibrium *among* rates on all forms of assets. The paragraphs which follow deal briefly with this problem and summarize some of the principal points of the present paper.

1. On the level of least generality, we can speak of the momentary equilibrium of an individual market for claims or securities in which the price clears the market for a very short interval. This equilibrium price or rate is brought about by competitive bidding and fluctuates with the changes in supply and demand.

2. A more general concept is that of an equilibrium set of rates which equates the marginal advantage of holding or disposing of all forms of assets for all individuals and institutions in the economy. If equilibrium in this sense prevailed, the rates on all forms of securities, the yields of all real investments including land, the marginal utility of cash balances, and the marginal utility of current consumption would

[30] Professor Lloyd Metzler in his recent article, "The Rate of Interest and the Marginal Product of Capital," (*Jour. Pol. Econ.*, Vol. LVIII [Aug., 1950], pp. 289-306) suggests an interesting variation upon the equilibrium relationship between the marginal product of capital and the market rate of interest. His argument, as I understand it, is that when an increment of capital is created by voluntary accumulation, the general level of the yield of capital and the level of interest rates drop. This drop in the interest rate increases the capitalized value of previously existing capital. The increment in social capital is thus greater than the increment of private capital by the amount of these capital gains. The social marginal product of capital equals the increment in net yield attributable to the increase in capital, divided by the sum of the voluntarily accumulated increment of capital and the capital gains on old capital. The private marginal product will equal the increment in yield divided by the voluntarily accumulated increment of capital. The latter fraction exceeds the former fraction. Since in equilibrium the private marginal product of capital equals the interest rate, it follows that under these conditions the social marginal product of capital is less than the interest rate. Mr. Metzler also indicates that under certain other conditions the social marginal product of capital may exceed the interest rate in equilibrium.

There appears to be an important difficulty in this line of reasoning. The marginal product of capital (or of anything else) is most commonly and most usefully defined as the ratio between a *very small* increment of net product and the corresponding *very small* increment of capital in some line of investment. This is the ratio which the investor tends to equate to the going rate of interest, thus establishing the equilibrium which Mr. Metzler assumes. But such an increment could not be large enough to affect the general level of interest rates or rates of return for the economy as a whole, and hence it is difficult for me to see how it could give rise to capital gains to owners of existing capital. The individual investor rightly takes as given at any time the going rate of interest and adjusts his investment activities to it without himself affecting it. His own contribution to the total capital stock of the economy within a period of time short enough to be within his planning horizon would necessarily be relatively infinitesimal and insignificant. Mr. Metzler's article does, of course, emphasize a very important and often neglected aspect of capital theory, the influence of changes in the general level of interest rates upon capital values.

all be equivalent to all marginal buyers and sellers of assets so that there would be no incentive to shift assets from one form to another or to consume some of them currently (or to reduce or increase the rate of accumulation of further assets). Under these conditions, explicit rates would, of course, vary considerably to allow for differences in risk, liquidity, transaction cost, prestige value and the like. This state of equilibrium would presumably be brought about in a more or less fluid and competitive economy through arbitrage in assets and through the channeling of new savings into those fields in which the net advantage appeared greatest. It could be actually realized only if a period of time sufficiently long to allow for these adjustments to take place could elapse without any other changes occurring such as technological developments or new discoveries of natural resources. Monopolistic elements could, of course, alter the nature of the final equilibrium, but so long as these elements were stable, they could be incorporated within the definition of this equilibrium concept. Although it is clear that such conditions could not be realized in fact, this concept is useful in defining a kind of norm toward which rational behavior on the part of asset owners and income receivers would tend to move the general rate structure. It provides also a further insight into the linkage between various rates on loans and claims, various rates of yield on real investment, the liquidity advantage of cash balances, and the choice between current consumption and accumulation of assets by setting up an equivalence among several margins of choice at once.[37]

3. A still more general equilibrium would add to the conditions stated in (2) above the requirement that all commodity markets be in equilibrium, all factor markets be in equilibrium, and that planned saving and investment be equal. Most of the comments in (2) would apply here as well. Explanation of the determinants of this equilibrium level would draw upon some of the earlier sections of this paper. Since the marginal productivity and marginal utility of all forms of assets are assumed to adjust to each other, it would be true to say that the equilibrium level is mutually determined by the rates of return on all assets and, hence, by the basic determinants underlying each of these rates of return. It is only where one particular form or class of assets accounts for a predominant proportion of all assets and especially where its rate of return is but little affected in fairly short periods by net additions to it that one could usefully speak of the rate of return on that class of assets as determining the equilibrium rate on others in the sense that others adjust to it rather than *vice versa*. Only under

[37] *Cf.* Harold M. Somers, "Monetary Policy and the Theory of Interest," *Quart. Jour. Econ.*, Vol. LV (May, 1941), pp. 488-507, reprinted in American Economic Association, *Readings in the Theory of Income Distribution* (Philadelphia, Blakiston, 1946), pp. 477-98.

these assumptions, for example, could it be argued that the rate of return on real capital investment sets the equilibrium level of rates of return on all forms of assets.

4. If to all of the conditions stated in (2) and (3) above, we were to add that net saving and net investment be zero and that no technological change or further discoveries of natural resources were possible, then we might approach a true long-run, stationary equilibrium. There would always be a tendency for all rates to approach this equilibrium and no tendency for departure from it. This is, of course, an extreme case.[38] We can perhaps justify the assumption of secularly diminishing returns to new investment as the economy accumulates capital in the absence of invention and discovery, based on the facts that some resources cannot be augmented through time except at higher and higher unit cost and that the most productive investment opportunities will be exploited first during the process of a region's development.[39] If we make the more realistic assumption that discovery and expansion continue indefinitely, it is very difficult to make any generalizations about the future historical course of the equilibrium level of rates of return on investment described in (3) above. Even if a downward trend were assumed, however, it would be difficult to say what force would place a limit upon the secular fall in rates of return and hence upon further accumulation, other than the doubtful idea of a specific and static rate of "time preference."[40]

The second and third versions of equilibrium appear most useful. They assume diminishing returns to investment in each individual form of asset and to increments of consumption but not necessarily to accumulation in general through time. They do not assume static conditions, and to be useful, they do not require that the general equilibrium condition be realized. They merely define a norm in terms of which

[38] It bears some resemblance to the classical notion of an ultimate stationary equilibrium in which no further accumulation would occur because the rate of return available on real investment would have fallen so low as a result of past accumulation that there would be no incentive for further accumulation.

[39] For a discussion of the problem of explaining secularly diminishing returns to net investment as an economy accumulates real capital, see Frank H. Knight, "Diminishing Returns from Investment," *Jour. Pol. Econ.*, Vol. LII (Mar., 1944), pp. 26-47, and Everett E. Hagen, "Capital Theory in a System with No Agents Fixed in Quantity," *Jour. Pol. Econ.*, Vol. L (Dec., 1942), pp. 837-60.

[40] This problem has given rise to the discussion of such questions as whether the rate would each reach zero or approach zero asymtotically, and whether a zero rate is compatible with the existence of any net marginal productivity of real capital. In this connection, Professor Samuelson comments, "My own preference is not to reify the limit by asking what really happens at a zero rate of interest, but rather to concentrate upon the dynamic path toward this limiting condition." For an interesting brief discussion of these and related questions, see Paul A. Samuelson, "Dynamics, Statics, and the Stationary State," *Rev. Econ. Statistics*, Vol. 25 (Feb., 1943), pp. 58-68, and references there cited

movements of rates can be explained. They represent a moving equilibrium through time since at no time is it assumed that no forces are at work tending to alter rates of return in various fields or in segments of the economy large enough to affect all the rest. There is, of course, the difficulty that through the time interval in which individual rates are tending to adjust to the general norm or equilibrium set of rates, that equilibrium will itself have moved as a result of over-all changes.

In conclusion, let me reiterate that the usefulness or meaningfulness of an equilibrium theory of interest rates does not depend upon any close correspondence between the theoretical norm and any of the wide range of interest (and capitalization) rates actually experienced at any point of time. As I indicated in several places above, differences among rates on different assets arise in part from more or less statical causes such as differential risk and monopolistic markets and in part from essentially dynamic causes—continual change in the conditions affecting markets for funds together with frictional elements which limit or slow the process by which specific rates adjust toward the equilibrium level. The latter causes further reflect the limitations of explaining dynamic phenomena by the use of statical methods. The usefulness of an equilibrium theory such as that discussed above rests upon the assumption that the behavior of actual rates is not chaotic and that underlying the bewildering complexity of apparent reality there is a causal pattern about which a set of relatively simple generalizations can usefully be made. The bridge between this equilibrium theory and the facts of experience must consist of a more detailed description of the peculiar institutional framework (including the monetary system and the government) within which asset owners in general, or some particular group of asset owners, manage and exchange their assets. Thus to explain the rate of return on a particular asset at a particular time one would not only need to know something about the equilibrium level toward which it might be expected to adjust, but would need as well to take account of the process by which this movement takes place and of the particular conditions which enhance or impede it.

UNION WAGE PRESSURE AND TECHNOLOGICAL DISCOVERY

By Gordon F. Bloom*

Do rising wage costs stimulate technological discovery? This problem is not only of timely importance, but also of significant theoretical interest. The proposition that wage increases stimulate invention has been advanced by such well-known economists as J. R. Hicks, who has propounded the theory of the "induced invention,"[1] and J. W. F. Rowe, who has advocated that unions ought to keep wages "a trifle above" the current marginal productivity equivalent, in the belief that the greater such wage pressure, the greater is "the stimulus to organization and invention."[2] Does empirical investigation lend support to the hypotheses of these economists that wage increases stimulate technological discovery? What is the relationship between wage adjustments and the rate of technological advance?

These are questions which we shall attempt to answer in the following discussion. We shall, however, confine our inquiry to technological discovery as it is conducted at the research level in industry[3] and shall not attempt to consider—except incidentally—the broader problem of the effect of wage changes upon the introduction of machinery and substitution of factors in the individual firm.[4] Furthermore, we shall consider the effect upon technological discovery of *union* wage pressure, rather than of wage increases *per se,* since union wage pressure may differ in nature and effect from non-union wage adjustments.

While union wage pressure may affect the rate of discovery in a number of ways, it will be convenient, in the interest of orderly discussion, to consider four principal ways in which this influence may be exerted:

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[1] J. R. Hicks, *The Theory of Wages* (London, Macmillan and Co., Ltd., 1932), Chap. 6.

[2] J. W. F. Rowe, *Wages in Practice and Theory* (London, G. Routledge and Sons, Ltd., 1928), p. 229.

[3] The theoretical analysis which follows is based in part upon the results of interrogation by the writer of directors of research activity in fifty industrial concerns. The writer is indebted to the Social Science Research Council for the grant of funds making possible a survey of industrial research activity.

[4] For a full discussion of the relationship between wage rates and mechanization, see G. F. Bloom and H. R. Northrup, *Economics of Labor and Industrial Relations* (Philadelphia, The Blakiston Company, 1950), Chap. 19.

(1) by altering the volume of research expenditures; (2) by influencing the direction or nature of research; (3) by affecting the proportion of discoveries which are worth exploiting; (4) by changing the average gestation period of inventions.[5]

Wage Pressure and Research Expenditures

The volume of new discoveries is, in part, a function of total expenditures upon industrial research. Therefore, if union pressure on costs induces management to increase research expenditures, unions can be credited with affording some stimulus to the rate of discovery.[6] Does union wage pressure affect the willingness of corporations to tie up funds in research? The decade of the 'thirties was marked by beligerent union organizing activity and a substantial increase in the level of wage rates. During this same period, the research expenditures of industry almost tripled. Similarly, from 1940 to 1946—a period marked by substantial increases in wage rates—employment of scientists in industrial research laboratories increased fifty per cent.[7] It would be premature, however, to impute a causal relationship to this correlation; for in the previous decade, from 1920 to 1931, research expenditures increased five-fold, while wage rates rose hardly at all.[8] It is apparent that other factors must be sought to explain the mushrooming of industrial research activity.

Industrial research directors as a group attribute some importance to wage pressure as a stimulus to research expenditure, but on the whole maintain that the stimulus exerted by rising labor costs has been of minor significance in comparison with other factors. To the question "Have rising wage levels in your company induced it to expand expenditures upon research?," 20 research directors interrogated by the writer replied in the affirmative and 30 in the negative.[9] Further ques-

[5] Number 4 is really an aspect of Number 3 and the two will be considered together.

[6] Of course, the extent to which an increase in corporate research expenditures is able to produce an acceleration in the rate of technological discovery will depend upon the proportion of the stream of invention which flows through these research laboratories. Although many important discoveries originate outside corporation research laboratories, and their initiation therefore is beyond the immediate scope of union influence, most new improvements *eventually end up* in industrial laboratories because large expenditures are necessary to improve most inventions to the point of marketability.

[7] See U. S. Bureau of Labor Statistics, *Monthly Labor Review*, Vol. 70 (April, 1950), p. 369, f. 2.

[8] The wage level was practically stable during the 'twenties. Average hourly earnings in manufacturing, mining and steam railroads were 54.7 cents in 1923 and in 1931, although there was a rise of a few cents in the intervening years. See U. S. Bureau of Labor Statistics, *Monthly Labor Review*, Vol. 51 (Sept., 1940), p. 524.

[9] Information was obtained by personal interview and supplementary mailed questionnaire.

tioning revealed that of the 20 research directors replying in the affirmative to the foregoing question, only 3 were of the opinion that wage pressure had exerted a major stimulus to research expenditure in their companies.[10]

When the same 50 research directors were asked, "Has union organization particularly stimulated research interest in one of these objectives: cost reduction; development of new products?," there was general agreement that union organization has had a negligible effect upon research activity.[11] Rising wage rates have apparently stimulated some increase in research expenditures, but the impact of union organization *per se* has not particularly stimulated interest in industrial research.

The Nature of the Research Process

The effect of wage pressure upon research expenditures can be more fully understood if the research process is subjected to closer scrutiny. If wage increases were to stimulate research expenditures, how would such a stimulus be transmitted? The level of research expenditure in the individual firm depends upon two factors: (1) the rate at which worthwhile projects for laboratory research are suggested by plant and professional personnel and by customers; and (2) the willingness of management to expend funds for exploration and development of these suggestions. These factors are, in turn, dependent upon more general economic circumstances such as the state of business confidence, the level of production and profits, the threat offered by competitive products, and the extent to which competitors engage in research activity. Analysis of these two primary aspects of the research process, however, will serve to illuminate more clearly the rôle of wage pressure in the motivation of industrial research.

Where do ideas for invention originate? What is the relative importance of consumers, management and labor as sources of research ideas? Tentative investigation suggests that the genesis of research ideas depends upon the type of good which is being marketed. If it is a consumers good sold to the general public, most of the ideas for research will come from plant personnel and trained laboratory technicians. Research directors, in general, agree that comparatively few new worthwhile ideas come from the consuming public. In most cases, the suggestions received embody ideas which, though seemingly novel

[10] This applies to the effect of wage increases as a stimulus. A number of research directors indicated that wage increases had raised the expense of research and in that sense had made for an increase in research expenditure.

[11] Of 50 research directors questioned, 43 replied in the negative and only 7 in the affirmative. Of the latter, 4 stated that union pressure had stimulated research in cost reduction, 1 that it had stimulated product development, and 2 that it had afforded a stimulus to both these objectives.

to the public, are known to the company and have already been the subject of experimentation in the laboratory. Frequently, it is true, a new product will be introduced, and then suggestions are solicited from the public as to its possible improvement, but it is seldom that major ideas of a basic nature come from the public.

On the other hand, when the consumer of the product is another industry, ideas for research are much more likely to originate with the consumer. In selling an industrial product, companies customarily employ trained technical salesmen who daily are in contact with purchasing agents and business executives. These users of the company's product frequently discuss their production problems with the salesmen. One such problem which often comes up is how to offset rising wage costs. Out of these discussions to which the salesman brings his knowledge of the technical potentialities of the product are frequently born the ideas of industrial research. It is important to recognize, therefore, that the effect of wage pressure upon research is often to be observed not in the industry in which the wage increases take place, but rather in the industry which supplies the capital equipment. In the hosiery industry, for example, rising wages have not produced much interest among hosiery manufacturers to expand research in cost reduction, partly because the machines which have the most bearing upon labor cost are so highly involved and complicated that the manufacturers prefer to leave the job of improving them to the hosiery machine industry. Problems created by rising wage rates in the hosiery industry are discussed with the salesmen of the machines, and ideas to eliminate labor filter back to the machine-making industry. No doubt this transmission of ideas from consuming industry to producing industry is quite common. Nevertheless, in the hosiery industry—as in industry at large—inventions appear to be more a function of the past technological development of the industry, of the stage in current scientific knowledge and of trends in the use of new products and new materials, than of the level of wage rates.

The source of research ideas also depends in part upon the type of research which is involved. Some companies, particularly in the chemical and electrical products industries, spend large sums for what may be called "pure" or "fundamental" research. Ideas for such research are confined almost exclusively to trained laboratory or professional personnel.

Just as the source of research ideas depends upon the type of research involved, so the sensitivity to wage pressure of the "birth rate" of ideas depends on the nature of the research project. Projects for pure research, for example, have little or no relation to the level of wage rates. Ideas for product improvement and development of new products

exhibit some sensitivity to wage rates, but less than that shown by research ideas designed to improve manufacturing operations. However, even with regard to the genesis of research ideas designed to save labor, management is divided in its opinion as to whether wage increases produce any marked increase in the number of suggestions which can be utilized as the basis for research. When fifty research directors were asked "Do you think that more labor-saving inventions would be discovered if the wage level were raised 25 per cent?," approximately 60 per cent replied in the affirmative and 40 per cent in the negative.[12]

There is no doubt, however, that the large cost of labor in business operations and the consequent desirability of economy in its use affects the attitude and direction of activity of research workers. Furthermore, it seems logical that when wage rates rise, department heads would be more alert to ideas which reduce labor costs.[13] Consequently, if industrial research were composed wholly, or even largely, of projects involving cost reduction, wage pressure would supply a much greater stimulus to research expenditure than it does. Actually, however, the writer's survey of industrial research laboratories indicates that only about 25 per cent of regular industrial research budgets are devoted to cost reduction projects, while in the neighborhood of 75 per cent is allocated to product improvement and development of new products.[14] In view of the fact that most industrial research is composed of product development and that *the percentage of industrial research budgets devoted to product improvement is growing,* it seems doubtful whether union wage pressure will produce any marked increase in the total number of worthwhile *ideas* which flow into or are developed in research laboratories.

Wage levels may, however, exercise a more significant influence upon the disposition of management to expend funds upon research; for an increase in wage rates may be the deciding factor in management's decision to investigate a new idea. At this level, in contrast with the original conception of ideas, it is more proper to think of a marginal

[12] Of the group reporting in the affirmative, a number qualified answers by adding that a wage increase of 25 per cent would stimulate changes in manufacturing *methods,* although such changes might not involve invention in the usual sense of the word.

[13] The higher the proportion of labor costs to total costs in the particular firm, the greater is the probability that wage increases will provide a substantial stimulus to the conception of research ideas.

[14] Cost reduction ranged from 2 per cent to a high of 50 per cent, as a percentage of research budgets, with a modal allocation of 25 per cent for cost reduction and 75 per cent for product development and improvement. Actually, research expenditures on cost reduction are probably somewhat larger than is indicated by this breakdown, because frequently cost reduction projects are not included in the regular research budget, but come under "engineering" or "mechanical and equipment" department expense. Nevertheless, managerial statements leave little doubt that the majority of all research expenditures is devoted to product improvement and development.

relationship between wage costs and research activity, but even here, the significance of wage rates is diminished by a number of considerations.

In large companies, the process of development of new techniques and improved products follows a somewhat standard pattern. First comes the original idea—from a worker, salesman, technician, or department head. An initial grant is requested for preliminary exploration of the idea and at this early stage the funds are generally granted without much scrutiny of the project, if the idea seems "fundamentally sound." After considerable laboratory experimentation, a second grant is requested to undertake a more intensive investigation of the possibilities of the new product or process. Finally, a model is constructed, which may involve investment in an expensive new plant. Naturally, before making any such large outlay of funds, the project is carefully examined with attention to a variety of factors including wage costs. However, costs and revenue prospects cannot ordinarily be estimated sufficiently accurately until the model is built for small wage changes to make much difference in management's willingness to authorize the project. It is only after long research and experience with a working model that a stage of research is reached where wage increases may play a decisive rôle.

At the last stage, a meeting is ordinarily called at which various executives of departments concerned with the research project discuss the merits of the new process or product and determine whether a major expenditure shall be made upon it to prepare it for production. Sales executives, particularly in large companies, seem most concerned about the improvement in quality or sales appeal which results from the new idea, while comptrollers and production men are likely to lay more emphasis on production costs. The level of wage rates is of most significance when the project involves a new process, and particularly when it is a new way of producing a highly standardized product, already manufactured in volume. For example, in a conversation with the writer, the research executive of a large can company made the following observation regarding the influence of wage rates:

> On a standard can produced in volume, the savings attributable to a change in technique can be fairly accurately established. Consequently, the effect of wage increases upon cost can also be accurately gauged and may prove a decisive factor in the decision to go into production. On odd sizes of cans, however, the reduction in cost effected by the new process can less easily be calculated, because the savings will depend in large part upon the volume of production, and the reduction in cost and price will have an effect upon sales which it is difficult to estimate.

The less that is known about sales prospects, the less is known about

margins, and the less importance attaches to the rôle of wage increases. When one comes to new products, therefore, where a new market must be exploited with unknown results, the effect of wage increases is reduced still further in importance. A new product must be "competitive," of course, but ordinarily revenue prospects and production costs are too ill-defined for a rise in wage rates to change management's decision to authorize a large grant of research. Thus, while wage levels are of more immediate concern at the latter stages of the research process, even here they do not constitute a major factor with regard to the bulk of industrial research projects. Most organized industrial research is devoted to development of new products and improvement of old ones; for projects of this type the level of wage rates is ordinarily a minor consideration.

There is, however, a substantial volume of industrial activity devoted to cost reduction and product improvement which is carried on outside organized research laboratories or research departments, but which nevertheless involves technological discovery of a sort. Thus, for example, the foreman, who, on the basis of his daily observation of shop practice, decides that he can secure a more rapid flow of material by a rearrangement of machinery, has made a "technological discovery" of a sort, although the effort and thought which he gave to the problem will not be reflected in an increase in research expenditures. Moreover, even in firms having established research laboratories, considerable research activity may be carried on in "engineering" or "mechanical and equipment" departments. All such research activity which is conducted outside the regular research department or which is not covered by a specific budgetary allotment to research may, for convenience, be termed "unorganized research."[15]

Opinions expressed by research directors suggest that such unorganized research is more sensitive to wage pressure than is the experimentation carried on in research laboratories.[16] Whereas the latter represents to a large extent efforts to invent new and improved products—an endeavor which as has been pointed out is not readily stimulated by rising wage rates—the former is likely to be devoted in large part to improvement of organization of work, an aspect of technological progress which may exhibit a greater sensitivity to the pressure of rising wage costs. However, despite the importance of improved organization of work in reducing costs, the technological changes which involve the largest investment and which make possible the greatest

[15] The designation "unorganized" does not imply that such activity is haphazard. It is unorganized only in the sense that it is not part of the "regular research program."

[16] Further investigation involving interrogation of foremen and heads of engineering departments will be required to ascertain the relationship between wage pressure and such unorganized research. The writer's survey was directed primarily at organized research activity.

economy in manufacturing operations—in short, the technical advances which set the tempo of technological progress—will to an increasing extent come out of organized research laboratories. And as has already been noted, union wage pressure does not appear to have significantly affected the volume of such research.

Factors Affecting Level of Research Expenditure

If rising research expenditures are not attributable to the increasing pressure of wages on profits, how is the mushrooming of industrial research to be explained? If not costs, then what is it that determines how much management spends on research?

The writer has asked the same question of numerous executives: "Why did you spend one million dollars (or a half, or two million, etc.) on research last year? Why was it not more, or less?" The most common reply is that the number of worthwhile ideas added up to that amount. Apparently research budgets are built up from the bottom, rather than from the top down. Only in a few companies is a certain amount set aside for research—say, a certain percentage of sales—and then allocated among various projects. In most cases, the ideas come first and then the allocation of funds. But it is apparent that management must have some guide to determine how many suggestions are to be considered "worthwhile." Probably a rough figure is arrived at by looking at other companies' expenditures and sometimes by using a percentage of sales.[17] The total funds requested by the various departments may add up to more or less than this figure, which then must be revised up or down.[18]

The long-term growth of industrial research appears to be attributable to a number of diverse factors. Its beginnings can be traced to the repercussions of the first World War. During the 'twenties, the high costs left by the war and the inefficiency which had developed during the years of war prosperity produced a reaction which took the form of wide-scale rationalization of industry and energetic efforts to improve technical efficiency. As one company after another set up research laboratories, research became part of the competitive practice

[17] The proportion of sales revenue allocated to research and development varies considerably by industry; as low as $\frac{1}{10}$ of 1 per cent of gross sales may be found in the packing industry, for example, while chemicals and allied products show the highest ratio, frequently 5 per cent or more of gross income (U. S. National Resources Planning Board, *Research—A National Resource,* Vol. 2 [Washington, Dec., 1940], p. 9). A survey conducted in 1940 by the National Research Council found that the median expenditure on research of 203 companies was 2 per cent of gross sales income (*ibid.*, p. 124). A more recent survey conducted in 1947 indicated a median percentage between $1\frac{1}{2}$ and 2 per cent of sales. National Industrial Conference Board, *Business Record,* Vol. 4 (March, 1947), p. 64.

[18] One factor which imposes a maximum on research endeavor is availability of laboratory facilities and trained personnel. The latter shortage always existed and now has been rendered acute by the demands of the rearmament program.

of the times. World War II, with its emphasis on new products, new techniques, and the increased use of substitutes and synthetics, together with the great scientific advances which have been made in recent years, contributed a further strong impetus to research endeavor.

Today total research expenditures by private industry are estimated at 900 million dollars a year. A survey of research expenditures of manufacturing concerns conducted early in 1950 found that 62 per cent of the companies consulted had greater research facilities available than before World War II and that 38 per cent of the firms had expanded research facilities during this period from 50 to 100 per cent.[19]

Although the next few years are likely to witness increasing corporate expenditures on research—particularly if the rate of corporate excess profits tax is increased—an uninterrupted growth of research is improbable. Research expenditures in the past have characteristically reflected the ups and downs of business activity, and a similar co-variation can be expected in the future. For American business as a whole, research expenditures can be represented by a rising trend, the deviations from the trend occurring in response to fluctuations in business conditions,[20] rather than to changing labor costs. While most employers today are planning increased appropriations for research endeavor, such decisions are apparently motivated more by tax policy than wage pressure. Entrepreneurial opinion suggests that if over the cycle there is a positive correlation between wage increases and expenditure upon research, this association is probably attributable to a temporal coincidence of high wages and high profits,[21] rather than to a causal relation between wage levels and research expenditures.

On the whole, there is little empirical evidence to suggest that wage pressure substantially affects the total volume of industrial research expenditures. Over the long run, higher wage costs, as one element in the general competitive situation, have probably contributed to increased interest in research as a means of maintaining and augmenting profits. The sharp upward trend in research expenditures, however, must largely be explained by non-wage considerations, while deviations from this trend are primarily attributable to fluctuations in business conditions.

Even if it could be demonstrated that union wage pressure had stim-

[19] *Mill and Factory* (May, 1950), p. 87.

[20] Not only research expenditures, but also patent issues reflect changing business conditions. From 1894 to 1930 the cycles in patents issued and industrial production tended to move concurrently. See E. Graus, "Inventions and Production," *Rev. Econ. Statistics*, Vol. 25 (Nov., 1943), pp. 221-23.

[21] Industry as a whole spent nearly five times as much on research in 1947 as in 1937. During this period total manufacturing profits before taxes rose in almost the same proportion. R. S. Soule, "Research Economics: Postwar v. Prewar," *Chemical Industries* (Aug., 1949), p. 197.

ulated research expenditures in the past, this would not necessarily forecast an increased rate of discovery in the future; for thus far union pressure has particularly been directed against large corporations which are the very ones most capable of reacting to such pressure by expenditures on research. While unions can be expected to organize an increasing number of small companies in the postwar years, a parallel extension of research endeavor is not of an equal likelihood. Because research is an expensive proposition, the bulk of industrial research in the United States is supported by a comparatively few large companies. Less than 3 per cent of all the concerns engaged in research employ about 50 per cent of the total research personnel.[22] Although there has been a substantial increase in personnel attached to laboratories supported by these large corporations, investigation suggests that the rate at which research is being adopted by new managements has tended to fall off in recent years.[23] The fact that this trend has become evident during a period of rapidly rising wage levels does not augur well for the influence of unions upon the extension of industrial research in the future.

Wage Pressure and the Nature of Research

Union wage pressure may have some effect upon the kind of projects which are supported by given research funds. One might expect, on the basis of *a priori* deductive reasoning, that, *ceteris paribus* the pressure of rising labor costs would tend to produce a shift in emphasis in research from development of new and improved products to discovery of labor-saving methods. The results of inductive investigation, however, suggest that this change in emphasis in industrial research activity has not occurred. On the contrary, *the percentage of corporate research budgets allocated to cost reduction projects appears to be decreasing*. The latter trend was reported by a number of the research executives interviewed by the writer and has also been observed by other investigators. For example, David Weintraub, former director of the Works Progress Administration Studies on Technological Change, has stated: "There is evidence . . . that the emphasis in industrial research has shifted from problems concerned with reducing costs to the development of new products and new applications of old products."[24]

That this trend has become evident during a period of rapidly rising

[22] D. Weintraub and I. Kaplan, *Summary of Findings to Date* (Philadelphia, U. S. Works Progress Administration, National Research Project on Reemployment Opportunities [March, 1938], p. 6).

[23] U. S. National Resources Planning Board, *op. cit.*, p. 185.

[24] D. Weintraub, "Effects of Current and Prospective Technological Developments upon Capital Formation," *Am. Econ. Rev., Supplement,* Vol. 29 (March, 1939), p. 29.

wage rates is highly significant. It is only fair to state, however, that apparent manifestation of this trend toward increased interest in, and expenditure on, product development is subject to certain limitations. In the first place, cost reduction projects in some companies are included under expenditures of the "mechanical and engineering department," rather than in the regular research budget. While the percentage of funds in the regular research budget devoted to cost reduction appears to be decreasing, expenditure for projects of this nature in other departments may be increasing. In the second place, it is probably the rule, rather than the exception, that improved processes which reduce costs also yield improved products. Consequently, it is difficult to separate the two as research objectives and any division made by research directors in their reports admittedly must be somewhat artificial.

Nevertheless, regardless of the factual basis for their statements, it is certainly significant that management *believes* that cost reduction is becoming relatively less important as a constituent of research activity. For this would seem to indicate that the upward impetus given to wage rates by union organization has not materially altered management's attitude toward the nature of research objectives. Of course, the increased interest in augmenting profits through product variation can also be interpreted as a reaction to wage pressure. Wage increases may interest management in product improvement as a means of getting into a higher price bracket and thus passing on part of the higher labor costs to consumers. Moreover, union wage pressure, although it increases labor costs, may, by reason of the form in which it frequently presents itself, actually stimulate management interest in product improvement, while deterring interest in cost reduction. For example, the objective of union policy in certain industries, such as men's clothing and women's hosiery, has been to secure uniformity in labor costs over large sections of the industry. Such a policy, in the words of a vice president of a large hosiery company, "tended to take the element of labor cost out of competition to a great extent, although not completely, as there were certain non-union sections which did not conform to the uniform rates and who had some labor cost advantage."[25] Inventive interest is thus diverted from the problem of reducing labor costs to improving the product; for product improvement becomes the main basis of competition.[26] Because they affect all producers alike and do not place one company at a competitive disadvantage relative to another, union wage adjustments on an industry-wide basis are less likely

[25] From a letter to the writer.

[26] The executive quoted above observes: "It is my opinion that most of the research carried on by individual companies in the hosiery industry has been stimulated by the desire to produce improved hosiery, hosiery innovations, etc., for sales promotional purposes rather than to reduce labor costs."

to stimulate research in cost reduction than are wage increases which proceed on the basis of the individual firm.

However, the principal reasons for the growing interest in product research must be sought along other lines. In the first place, it is important to remember that most research is supported by companies which manufacture nationally known and advertised products. Because they sell in a market which, through advertising, has been persuaded of the supposed superiority of their products, competition by these companies generally emphasizes quality rather than price, and this emphasis on quality colors research activity as well. One research director stated that the merits of a research project in his company—a large can manufacturing concern—were considered in relation to quality, service, and cost reduction, in that order. In one of the largest prepared food sales corporations, cost reduction does not even appear as a category in the research budget; instead the classification of projects adopted is: "service, new products, and improved products and processes." This same company effected a savings of approximately $300,000 a year through perfection of a process to retain artificial flavoring in a nationally known dessert, but according to the president of the company, the saving in cost was considered incidental to the improvement in the product which resulted.

Executives in large companies are keenly interested in price reduction; they realize the importance of keeping their product "competitive," but frequently they view the process of price reduction in a slightly different sequence than is customary with most economists. A common business viewpoint is that production of a better product with a wider sales appeal increases volume which in turn makes possible a reduction in costs and price. Many company executives think in these terms, rather than in a direct sequence from cost reduction to lowered prices. This attitude is attributable to the fact that in some industries "unfair price competition" is frowned upon by businessmen, whereas product competition has business sanction. There is some indication that the focus of monopolistic competition is shifting more and more to competition on the basis of product, rather than price—a trend which is reflected in the increasing percentage of research budgets being expended on development of new and improved products.

Another possible reason for the growing portion of research budgets devoted to product improvement and development is that research in this area may be more profitable than research in cost reduction. While it becomes progressively more difficult to reduce labor costs as a higher degree of automatism in operation is reached, the possibilities of increasing profits through product improvement and variation seem to be unlimited. Of course, the comparative advantage of product im-

provement versus cost reduction will vary firm by firm and industry by industry, depending upon the type of product and mode of production. For many mechanical operations, however, it is true that such a high degree of mechanization has already been achieved—as in the case of carton filling, for example—that it may be both difficult and expensive to discover new more labor-saving methods.[27]

A third—and final—reason for the growing importance of product development and the diminishing importance of cost reduction projects in research budgets may be listed, although it was not mentioned by any of the research executives interviewed by the author. This is the fact that cost-reducing improvements, since they generally involve displacement of labor, produce more friction in industrial relations than do improvements in the quality of the product. This consideration may not be of much importance at present, though unconsciously it probably reinforces the effect of the other circumstances in shaping management's attitude toward research. In the future, however, as unionism matures and its power to resist displacement of labor by machinery grows, this factor will add its weight to the others which have been mentioned in reducing the importance of cost reduction in industrial research budgets.

Thus the nature of the changes which are occurring in the composition of corporate research budgets does not conform to what might be expected to follow from rising wage costs, on the basis of traditional analysis. Application of the Hicksian theory of the "induced invention."[28] for example, would seem to forecast an increasing relative frequency of labor-saving inventions[29] and a stimulated interest in research projects devoted to reduction of labor cost. Actually there is little evidence that this has occurred. Union wage pressure appears to have produced some increase in the total volume of discoveries, but it has not increased the proportion of these discoveries which are concerned with reduction in labor cost. As a matter of fact, if recent trends in research activity are continued, it appears the invention in the future will, to an increasing extent, be geared to product improvement rather than cost reduction. Such a shift in emphasis will tend to lessen the effect of union wage pressure upon the rate of technological discovery.

[27] However, even if, within a given technological era, it does become more difficult to discover means to save labor, most research directors questioned by the writer were of the opinion that over the long run invention will be more, rather than less, labor-saving than in the past.

[28] J. R. Hicks, *op. cit.*, p. 125.

[29] The predominance of the labor-saving invention is explained by Hicks as attributable to the phenomenon of the induced invention. A rise in the price of labor relative to the price of capital would, on the basis of this theory, be expected to increase the predominance of labor-saving inventions in the total volume of new discoveries.

Wage Pressure and the Effective Rate of Discovery

For certain purposes, it is convenient to distinguish the rate at which inventions are developed in the laboratory from the rate at which they are made available to the public. The former may be called the actual rate of discovery; the latter the effective rate of discovery. These two rates are not necessarily equal; the proportion of inventions which will be commercially exploited depends upon the cost-price structure and upon the nature of competition.

Although wage pressure does not have much relation to the actual rate of discovery, rising wage costs may increase the proportion of inventions worth exploiting and thus produce an acceleration in the effective rate of discovery. As has already been indicated in the analysis of the various stages of the research process, an increase in wage rates may be the determining factor in management's decision to make the final research appropriation necessary to bring a new product or process into production. This stimulus is probably of most significance with regard to improved processes where margins and expected sales can be more accurately estimated. However, expectation of rising wage rates in the future makes management particularly anxious to improve its current profit position, so as to be prepared for the higher burden of costs. For this reason, a continuously rising wage level probably stimulates commercial application of new and improved products as well. Moreover, wage increases may act as a detonator in research activity, much the same as they increase the general level of efficiency of an enterprise. Research work may have been going on sporadically for some time on development of a new manufacturing technique, but a sharp increase in labor costs will bring orders from management to speed up experimentation and get into production as rapidly as possible. Thus, wage pressure may increase the effective rate of discovery by shortening the average period of gestation of invention.

From the point of view of national welfare, it is probable that invention spends too long a period in the laboratory. What is needed is a higher effective rate of discovery accompanied by a more orderly process of application of improved products and methods. In a survey of important discoveries, Dr. S. C. Gilfillan found that an average of half a century elapses between the first serious work on an invention to important use from it.[30] Rising labor costs, however, make change more desirable and continuance of old methods costly. Union wage pressure, therefore, by augmenting the advantage of the new over the old, may stimulate management to accelerate research experimentation upon new discoveries and to release them more rapidly to the public.

[30] S. C. Gilfillan, *The Sociology of Invention* (Chicago, Follett Publishing Co., 1935), p. 96.

On the other hand, high labor costs may also retard the effective rate of discovery by increasing the mortality rate of business enterprises. In the absence of unions, inefficient entrepreneurs would enjoy a better chance of survival. Such survival is, of course, socially undesirable if it is bought at the price of substantial wages. On the other hand, it should be recognized that a high rate of business mortality makes for unproductive use of existing patents and probably reduces the effective rate of discovery. Our knowledge is limited concerning the disposition of patent holdings of insolvent firms, but it seems likely that full exploitation of many new ideas is substantially delayed in the process of bankruptcy and reorganization. It is true that a threat to survival provides the maximum incentive to increased efficiency and invention, but survival itself is essential if the full benefits of the pressure are to be reaped. Too rapid a rise in wage rates not only produces short-run unemployment, but also diminishes the flow of the stream of discovery upon which the level of long-run employment depends.

On the whole, it appears doubtful whether unions will make a substantial contribution in the direction of achieving an acceleration in the effective rate of discovery. While it is true that union pressure on costs may shorten the average period of gestation of invention, the growing strength of union organization is likely to be reflected in a multiplication of union rules and regulations which retard the rate of actual introduction of mechanical improvements. These restrictions are concrete and the retardation they impose on technological change is known, whereas, by contrast, the effect of wage pressure upon technological discovery is vague and indirect.[31] Although at the present stage of union development there may still be some small net stimulus forthcoming from wage pressure,[32] in the future, growing union efforts to safeguard the jobs of individual union members and to preserve the *status quo* will probably act as an over-all brake on the pace of technological advancement. It is possible, however, that unions as a consequence of management's grant of an annual improvement factor will be more willing to relax restrictive rules and regulations so as to make possible the technological advance upon which the improvement factor is based.

[31] The existence side-by-side of high wage rates and time-consuming methods in the construction industry has not proved an effective stimulus to technological change, because innovators realize that new techniques would be opposed by the unions. The effect of restrictive union practices must be judged, therefore, not only by the retardation they produce in the rate of introduction of known improvements, but also in the discouragement they afford to potential invention.

[32] This stimulus to the rate of discovery is small compared to what could be accomplished by intelligent revision of tax and patent laws.

LESSONS OF WAR FINANCE

By Woodlief Thomas*

War finance provides economists with a laboratory for testing theories of inflation and its control. The methods adopted to finance war not only have significant effects during the war period but also can have far-reaching consequences long after the war has ended. With two major wars in our generation and another threatening, it behooves us to study the experience of the past and to endeavor to avoid repeating any mistakes we have made.

The National Debt in War and Transition by Henry Murphy[1] furnishes an intelligently analyzed and probably the most comprehensive review of the methods and consequences of war finance that has ever been prepared. No one is better qualified by experience and training to undertake this task than Mr. Murphy. As assistant director of research and statistics in the Treasury Department for more than a decade before and during World War II, he had direct responsibility for research in debt management and was an active participant in the councils that determined policies. As an occasional participant and also a responsible observer, I can attest to the high quality and vigor of Henry Murphy's contributions, particularly because we frequently disagreed.

I

As indicated in the preface, this book endeavors to fill the place of an "official 'administrative' history . . . discussing the background of the policy decisions of the Treasury and the Federal Reserve System in the field of public debt management during the war period and thereafter." It is not intended to be an exposé; it is more nearly an apologia, for the author definitely states and supports his belief "that, on the whole the job of war finance and of postwar financial reconversion was well done." It is with this thesis, in my opinion, that there can be disagreement.

Many of the differences in views between the Treasury and the Federal Reserve are discussed in the book. Mr. Murphy expresses the

* The author is economic adviser to the Board of Governors of the Federal Reserve System. Views expressed are those of the author and should not be considered as representing the views of the Board except to such extent as the Board has published its positions.

[1] McGraw-Hill Book Company (New York, 1950), 295 pages.

view that these differences "were generally on narrower issues than was often supposed outside official circles." It is true that the Treasury and the Federal Reserve agreed as to broad objectives and that most of the differences of opinion related to matters of judgment as to procedures in carrying out these objectives. Many of the specific proposals seemed hardly wide enough apart to be significant. The differences in point of view, however, were not superficial; they were based upon fundamental and significant disagreements of principle and theory. Frequently those concerned with making the decisions were not fully aware of the fundamental significance of their advice and actions.

It is useful to review these differences, as well as those aspects of debt management about which there was substantial agreement, and to appraise the experience critically. If we should embark upon another war, and even in the smaller-scale defense program which we have recently undertaken, it is most important that to the maximum degree possible we avoid the mistakes of the past. Some of the mistakes were seen at the time by observers, while others have become apparent as a result of subsequent developments. The decisions made were generally based upon careful analysis, wide discussion with a large number of people, and the weighing of different points of view. The Treasury could not be criticized for failure to seek advice. Nor should the Treasury necessarily be held to blame for all the decisions that might be called mistakes. The counsellors were frequently divided in their views and in some cases there was general agreement upon policies which on the basis of subsequent events might be considered as mistaken.

This book on the national debt gives in detail the information needed to show those mistakes. The author, however, is rather complacent about them. He concludes that the war borrowing program was "by a wide margin the best handled and most successful which the country has ever seen." His assertion that "the total war and postwar inflation was held to smaller bounds than had been the case in either World War I or the Civil War" is hardly supported by the facts. The concluding sentence that "We should all be well content to let World War II stand forever as the highwater mark in our development of the techniques of war finance" is a questionable conclusion in the light of the facts presented in his book.

II

The principal features of World War II finance have been set forth in many records[2] and are well known. Mr. Murphy's contribution is to

[2] Some of the principal sources are: Abbott, Charles Cortez, *Management of the Federal Debt* (New York, McGraw-Hill, 1946); Anderson, Benjamin M., "Inflation, the Rate of Interest and the Management of the Public Debt," *The Economic Bulletin*, May 27, 1947; Board of Governors of the Federal Reserve System, *Annual Reports*, 1942-1950;

present them in greater detail with a discussion of the various considerations that led to the decisions made. He also gives a useful analysis of government finance during the depression and defense periods. Knowledge of these periods is essential for an understanding of many of the aspects of war finance.

The principal decisions as to war finance were: to tax heavily but not to cover all expenses by taxation; to borrow through voluntary means and not through compulsory savings; to raise needed funds as expeditiously and as cheaply as possible; to endeavor to sell the maximum possible amount of securities to nonbank investors, but to rely upon banks for residual amounts; and, finally, to make use of the Federal Reserve to assure that funds could be raised on the basis of the interest rate pattern and terms adopted.

Chapters on "The War Economy," on "Taxation Versus Borrowing," and on "The Voluntary Way for War Borrowing" in the early part of the book present briefly a rationale of various possible methods of war finance, considerations governing their adoption or rejection, and a résumé of those actually adopted. The relative merits of taxation and borrowing are discussed from the standpoints of fairness, inflation controls, production incentives, and postwar effects. The political, psychological, and economic limits of taxation are also emphasized. There is an enlightening discussion of the inflationary gap and of the rôle of savings. Finally, there is considerable discussion of various proposals for compulsory savings and of the suggested spendings tax.

To cover adequately the subject of wartime taxation would require another book. A comprehensive, critical appraisal of war finance should place more emphasis than Mr. Murphy does upon delays in obtaining additional taxation. The story was consistently one of too little or too late. Measures vigorously opposed one year were belatedly adopted the next. In the meantime, the inflation potential mounted. Adoption of the current withholding of individual income taxes is a striking

Chandler, Lester V., ***Inflation in the United States, 1940-1948*** (New York, Harper, 1951); C.E.D., ***Monetary and Fiscal Policy for Greater Economic Stability*** (New York, Committee for Economic Development, 1948); Committee on Public Debt Policy, ***Our National Debt*** (New York, Harcourt Brace, 1949); Hansen, Alvin H., ***Monetary Theory and Fiscal Policy*** (New York, McGraw-Hill, 1949); Harris, Seymour E., ***The National Debt and the New Economics*** (New York, McGraw-Hill, 1947); Secretary of the Treasury, ***Annual Report for 1945;*** Thomas, Woodlief, and Young, Ralph, "Problems of Postwar Monetary Policy," ***Postwar Economic Studies,*** Number 8, Board of Governors of the Federal Reserve System, 1947; U. S. Congress, ***Monetary, Credit, and Fiscal Policies***—statements submitted to Subcommittee on Monetary, Credit, and Fiscal Policies, Joint Committee on the Economic Report, 81st Congress; U. S. Congress, ***Report of the Subcommittee on Monetary, Credit, and Fiscal Policies of the Joint Committee on the Economic Report Pursuant to S. Con. Res. 26,*** 81st Congress; Eccles, Marriner S., ***Beckoning Frontiers,*** Parts VI and VII (New York, Alfred A. Knopf, 1951).

example. This measure and the spendings tax were not pushed earlier because they might interfere with the savings bond campaigns.

Toward the end of this review there is given a further analysis and criticism of some of the underlying theories that seemed to guide Mr. Murphy in his appraisal both of the various possible methods of war finance and of the success of the debt-management procedures and policies actually followed.

III

It is with the borrowing aspects of war finance that this book is most concerned. In this area emphasis was correctly placed upon the necessity in war for finance to be the servant, not the master. It is essential that needed funds always be readily available. What is often lost sight of is that under conditions prevailing at the outbreak of the war in this country, the task of borrowing money was an exceptionally easy one. Wth modern central bank techniques, governments can readily obtain funds in almost any amounts. The more important consideration of war finance is to raise funds in a manner which will minimize inflationary consequences not only during the war but in the years to follow.

In the United States in 1941, it was particularly easy for the Treasury to borrow abundant funds at low rates of interest. The reasons for this grew out of developments in the depression period; they were: (1) the tremendous inflow of gold during the 1930's which had swelled the reserves of the banking system far beyond the needs of the economy, particularly at the depressed levels prevailing; (2) the resulting very low level of interest rates and especially the wide spread between short-term and long-term rates; (3) the gradual adoption by the Federal Reserve of a policy of supporting the government securities market; and (4) the relatively large volume of government securities held by the banks which could through sales to the Federal Reserve readily create additional reserves.

These significant influences, which were all related, formed what has been called the "government's easy money policy." Contrary to a popular view, they had not been "planned that way," but had developed naturally and gradually out of the circumstances of the 1930's. They were largely depression phenomena, but continued to exist during the expansion that occurred in the defense preparation period of 1940 and 1941. Thus we entered the war at the end of 1941 not only with the lowest level of interest rates in our history—a level that had only just been reached—but also with a structure of rates that was characteristic of a highly abnormal depression economy. This situation

conditioned wartime and postwar debt management and to a large extent determined its consequences upon the economy.

IV

One of the first policy decisions made was to borrow for war finance generally on the basis of the structure of interest rates then prevailing. The Federal Reserve entered upon this arrangement, which gradually became a commitment, with some misgivings. The reason for its adoption was the recognition that with almost unlimited borrowing always in prospect, interest rates would tend to rise and that such a prospect would tend to hold back purchases of securities. At the same time, the artificial nature of the existing structure was a cause for worry.

In particular, the Federal Reserve wanted somewhat higher rates at the short end and some of the Federal Reserve officials would also have preferred a little more flexibility in long-term rates before establishing a pattern. Chairman Eccles suggested that, if the long-term rate was to be frozen, long-term bonds sold to nonbank investors should be nonmarketable with redeemability only at a sacrifice in interest return. Subsequent events indicate the wisdom and foresight of this proposal, which was adopted to a limited extent. Mr. Murphy's principal positive suggestion for any future war financing is for greater use of securities of this sort.

The Treasury not only insisted upon the maintenance of very low short-term rates but also during early 1942 wanted the Federal Reserve to assure that banks continue to have a large volume of excess reserves. It soon became evident that, with the persistent credit demands from the government and from private borrowers, such a policy could only lead to unlimited credit expansion and a decline in interest rates close to the zero level that had prevailed for Treasury bills during previous periods of large excess reserves. The decline would have gradually permeated the whole rate structure. Under such a policy the objective of selling the maximum amount of securities to nonbank investors would have been a sham. The eventual establishment by the Federal Reserve of a 3/8 per cent buying rate on Treasury bills in effect provided banks with interest-bearing excess reserves, which were limited, however, by the volume of bills available.

With the rate structure that prevailed, as the Treasury offered increasing amounts of certificates, notes, and bonds, as well as of bills, practically all of the bills, which bore the lowest rates, gradually came into the Federal Reserve portfolio. Eventually it developed that dealers bid for the weekly bill offerings and promptly sold them to the Federal Reserve at the established buying rates. The Federal Reserve repeatedly made suggestions for permitting somewhat higher rates on bills, so

that banks and others would hold them. Some of these suggestions included means for lower rates on Federal Reserve holdings. It should be pointed out that opposition to the adoption of such measures existed within the Federal Reserve as well as in the Treasury. Not until 1947 was a workable *modus operandi* finally adopted.

Gradually each segment of the rate pattern became firmly fixed. Soon after the fixing of 3/8 per cent on three-month bills, certificates began to be issued and the rate shortly settled at 7/8 per cent for one year. Another established peg came to be 2 per cent for bank eligible bonds with a maturity of not more than 10 years. The top limit was the early agreed-upon 2½ per cent for long-term bonds, which was not raised even when the long bonds issued were restricted as to ownership by banks and although the maturities were gradually lengthened.

With this sort of a pegged pattern there was no difficulty in keeping down long-term interest rates. The longer-term higher rate securities were popular. All securities rose in price as they approached the term of lower yielding issues. The shorter issues were sold to the Federal Reserve and longer issues were bought. The new reserve funds thus created provided the basis for multiple expansion in bank purchases of longer securities. This practice, which came to be known as "playing the pattern of rates," tended to bring down long-term interest rates. During the war period, the tendency of rates to decline was retarded by continued new offerings of longer term issues, but the movement became most pronounced in 1945 and 1946.

This was an almost perfect mechanism for promoting unlimited purchases of government securities but not for restricting inflationary credit expansion. The mechanism was made even more effective through the conduct of the war loan drives, combined with temporary elimination of reserve requirements against so-called war-loan deposits at banks. It should be clearly recognized, of course, that maintenance of the pattern of rates, the conduct of the war loan drives, and the exemption of war loan deposits from reserve requirements, while designed to facilitate war finance, were not intended to create such "an engine of inflation" as the combination later came to be called by Mr. Eccles. The results, while feared by some, became evident only with subsequent developments.

Mr. Murphy describes with considerable objectivity the various steps and reasons whereby the pattern of rates became established and also the processes whereby it tended to lower interest rates. He has little to say, however, about the inflationary consequences of these developments; rather he implies that purchases of securities by the Federal Reserve and commercial banks would have been just as large with any other structure of rates.

V

The war loan drives, which were designed to further the objective of raising funds from nonbank investors, came to have consequences which cast doubt upon their effectiveness in accomplishing that objective. This controversy is one in which the different viewpoints were and no doubt will continue to be based upon reasonable variations of judgment depending partly on emphasis given to particular objectives. It is clear that, owing to the profits that could be obtained from playing the pattern of rates, many of the purchases of securities in the later drives were made possible by sales to banks of securities purchased in previous drives. Such shifts, which were known as "free riding," were highly profitable, and the possibility of profits induced some of the buying of securities. Free riding or "quota riding" also resulted from efforts to build up impressive sales results in local war-loan campaigns.

Thus it can be demonstrated that the war-loan drives, although ostensibly drawing in large purchases of securities by nonbank investors, actually brought about heavy sales of securities to banks. The question that remains unsettled is whether in the final analysis the drives resulted in the purchase and retension by nonbank investors of more securities than would otherwise have been obtained. Murphy believes that they did, but there can be no definite answer to this question, because the alternative procedure was never tried. The Federal Reserve persistently recommended procedures designed to restrict nonbank purchases of the type that resulted in large resales to banks. Such proposals were often opposed by the sales organizations for the war-loan drives, but some measures of the sort were attempted.

One important contribution of Murphy's book is the detailed description of the various war loans—the setting up of the sales organization, the various securities included in each loan, the establishment of quotas, the changes in selling methods, the restrictions designed to limit "free riding" and direct or indirect bank participation in the loans, and the final results of each loan. The recital of facts shows how sales enthusiasm and the desire for large quotas generally prevailed over what Murphy calls the aim of "purity" in avoiding the leakage of securities to commercial banks.

The discussion of "free riding" gives inadequate emphasis to the influence of the pattern of rates in encouraging such a practice. In one place (page 178), Murphy expresses concurrence with the opinion of the sales organization that a substantially larger amount of securities remained in the hands of nonbank investors as a result of the supersaturation than would have been the case if sales had been limited. Elsewhere (page 172) he expresses the view that, if corporate over-

subscriptions, made possible by leakages to banks, could have been reduced, more intensive canvassing of individual investors would have been necessary and "probably, a larger portion of all the funds raised would have come from nonbank investors."

VI

Ultimate appraisal of the success of war finance cannot be reached alone on the basis of wartime results. Postwar consequences are even more important. In war direct controls of various sorts and extra heavy taxation, as well as patriotic appeals and the willingness of potential buyers to await better selections, can be relied upon to help hold back inflation. After the war, when increased supplies of goods become available, for which accumulated wartime savings may be used, and when market forces can again be permitted to operate, the success of war finance is subjected to its real test. Judged on the basis of this test, the methods of financing World War II and postwar monetary and debt management policies should be viewed with skepticism as a guide for the future. The inflation that resulted was serious. The question remains as to what different policies would have reduced the degree of inflation.

With the termination of heavy Treasury borrowing but continuation of the policy of maintaining the pattern of rates, the principal limitation on a downward adjustment of long-term interest rates was removed. There developed a bull market in government securities, which Murphy says was due almost entirely to psychological causes, ignoring the more obvious cause. It was then that more serious differences of opinion developed between the Treasury and the Federal Reserve. The latter wished to take action which would discourage sales of short-term securities to the Federal Reserve to obtain funds to purchase higher-yielding securities. Even though action of this sort was essential not only to limit creation of bank reserves but also at first in order to prevent a further decline in long-term rates, the Treasury wanted to avoid any rise in interest rates.

Chairman Eccles proposed, as a means of accomplishing the Federal Reserve objective of restraining monetary expansion without causing a rise in interest rates, a supplementary reserve requirement for banks that could be held in short-term government securities. This proposal was not supported by the Treasury, nor by all the Reserve Banks, and was vigorously opposed by bankers. Murphy does not even mention the proposal.

Resumption of private demands for long-term, as well as for short-term borrowing, and a program of debt retirement by the Treasury,

which reduced bank holdings of short-term securities, shortly curtailed the demand for long-term Treasury bonds. Pressures on the short-term market, however, continued and the Federal Reserve was steadily called upon to purchase short-term securities in order to supply funds to expand private credits.

Murphy expresses the view that the 1946 Treasury program of retiring debt from previously accumulated cash balances was entirely neutral in its effect. Actually it had some deflationary effect to the extent that the Federal Reserve holdings were retired, because banks were thereby deprived of reserves and had to obtain funds by selling securities. Later when budgetary surpluses were used to retire securities held by the Federal Reserve, the deflationary effect was even more pronounced and is acknowledged by Murphy. This is a matter on which there has been considerable misunderstanding, growing out of the habit of measuring results only by net changes in holdings of securities by different groups of lenders without considering the intervening steps. When banks find it necessary to sell securities, some degree of restraint is exerted upon them, even though the Federal Reserve buys the securities at a fixed rate. The restraint, of course, is greater if rates are permitted to rise under such selling pressures.

Finally, bginning in the summer of 1947, short-term interest rates were permitted to rise somewhat in response to market pressures. The artificially wide spread in the structure of rates narrowed considerably. Federal Reserve holdings of Treasury bills declined, and holdings by commercial banks and by nonbank investors increased. Murphy mentions the changes in rates but does not point out the effects in obtaining a better distribution of the short-term debt among investors and in reducing creation of bank reserves through playing the pattern of rates.

Selling pressures then shifted from short-term securities to long-term bonds, particularly the restricted bonds. Late in 1947 selling of bonds accelerated. The Federal Reserve made heavy purchases even at substantial premiums in order to cushion the decline in prices and discourage speculative selling. Soon the Federal Reserve lowered its support prices to little above par for the longest issues and bought freely at the pattern of prices set. Altogether within about a year Federal Reserve purchases of bonds totalled about 10 billion dollars. Murphy describes these developments but does not give an appraisal of basic issues involved in the policy of pegging bond prices by a process that creates additional bank reserves in an inflationary period.

The chronological description of war finance ends with developments in the middle of 1949 and the change in Federal Reserve policy from endeavoring to resist inflationary tendencies. The conclusion is that this

change in policy should have occurred earlier because of the developing recession. Subsequent events, not discussed in the book, indicated that the so-called recession was only a minor and probably inadequate readjustment and an early re-reversal of policy was necessary.

VII

A rationale, if not *the* rationale, governing debt management policies followed during the war is presented by Murphy. It is doubtful whether the theories underlying Murphy's appraisals have been supported by subsequent events or should be accepted as the basic principles of war finance to guide us in the future. Expressed in simple terms they are that change in the quantity of money is not an important consideration in war finance and that interest rates should not be permitted to rise. A corollary view is that the forms in which liquid assets are held are not of particular importance. Finally, the fear of a postwar recession and the desire to have an accumulated fund of buying power to cushion such a decline was a guiding motive.

Analysis of the "inflationary gap" and of the "paradox of savings," presented in the book, is a useful reminder of some of the complexities of determining the possible inflationary consequences of war finance. It is shown that substantial savings are inevitable when there is a large government deficit and that the statistical quantity of saving is not a measure of the degree of inflation or of deflation. The effect depends on the uses that are made of the savings. The practical rule is that "everything possible should be done to induce people and business firms to save. The more they try to save, the lower will be prices. . . ." With respect to the application of this rule, however, Murphy belittles the effectiveness of the most readily available procedure. His basic philosophy appears in the following statement (p. 72):

> It should be emphasized that it is the stimulation of savings and not the procurement of the investment of these savings in government securities which is essential. If the money is saved, it is only a matter of the niceties of finance that it should be invested directly in government securities by the saver. If he does not so invest it, this will be done for him by the banks or other institutional investors whose liabilities he is holding. . . . But if a wartime borrowing program is not effective in stimulating saving, it is of no avail that it succeeds in selling enough securities to finance the deficit. Spending will continue in excess of the available supply of goods and services, and prices will rise in a never-ending spiral. This is a difficult concept—the most difficult in war finance.

While these criteria represent the "ultimate" goal, they "are too complex for a sales organization to understand." It was necessary, there-

fore, to establish as a "proximate" goal of success the more measurable result of the volume of sales to nonbank investors. Although Murphy contends that this was not the "real" objective, he does admit that it had considerable validity because "funds invested in government securities are less likely to be spent readily than those saved in the form of currency or bank deposits." Greater emphasis upon this proximate goal, rather than less, in debt management policies would probably have brought us nearer to attainment of the ultimate goal than was actually reached.

Important considerations either not mentioned or not given adequate weight by Murphy are: (1) increases in bank deposits require the creation of bank reserves, which continue available to banks even if the deposits are later extinguished by debt repayment; (2) increased savings—the "real" objective—can be induced if securities offered are sufficiently attractive; (3) devices can be employed to discourage dissaving, once funds are invested in government securities, particularly if they have to undergo the test of the market; (4) finally, the test of effectiveness should be measured not so much by wartime as by postwar experience.

The philosophy that the form of savings did not matter also partly explains the view that the level of interest rates did not matter very much. In the discussion of fitting the securities to the needs of investor (page 266) there is some recognition that rates of interest as well as maturities should vary. In order to provide rates high enough to suit the needs of some investors and still not upset the established pattern, longer maturities were offered. The sensitivity of the prices of these long-term securities to interest rate changes, Murphy correctly points out, "greatly increased the difficulty of making any adjustments in long-term interest rates in the post-war period."

Murphy's basic view, however, is expressed as follows: "it is unlikely that an increase in interest rates would have been helpful in furthering the ultimate objective of reducing total spending." He admits that for the postwar period it was too early to say whether the wartime long-term rate of interest was correct. But his basic view during the war and after was that long-term rates should be low and should not be permitted to rise.

One of the important and persistent considerations determining wartime debt-management policies that in the light of hindsight was mistaken was the fear of postwar depression. It was thought that an accumulated pool of buying power could be prevented from causing inflation during the war by direct controls—the example of Nazi Germany was cited in support of this view—and would be useful in preventing depression after abnormal wartime demands ceased. It is now

clear, and should have been during the war, that these fears were unfounded. All of the discussion of compulsory or voluntary saving as a means of providing a postwar backlog of buying power was a misdirection of emphasis. The pool of buying power turned out to be obviously excessive and was responsible for an avoidable degree of postwar inflation.

VIII

In view of the basic principles that seem to guide his judgments, Murphy's appraisal of the success of the war borrowing program could not be particularly critical. Because the proportion of United States securities was increased from 24 per cent to 43 per cent of total liquid assets held by nonbank investors, he concludes that the sales organization deserves credit for "a considerable degree of success toward achievement of the proximate goal of the war borrowing program—*i.e.*, the sale of securities to nonbank investors." He lists certain other important factors that contributed to this achievement. Question can be raised as to whether, in view of the tremendous increase in total liquid assets, there might have been ways of selling more securities to nonbank investors and, more importantly, of having them held more firmly in the postwar period.

Appraisal of the attainment of the "ultimate" goal, namely to reduce total spending and thus to help in holding down prices is highly equivocal. In effect, Murphy seems to say that to the extent that the war borrowing program did this, it made a contribution to the wartime stabilization program and to reduction of postwar inflationary pressures.

An involved analysis of yearly increases in money and liquid assets *as percentages of gross national product,* compared with percentage increases in prices, is presented, apparently to support a conclusion that short-run changes in money have no bearing on price changes. Another set of comparisons of actual figures is given to indicate that in the long run money and liquid assets do seem to have a bearing on price changes. On the basis of this comparison and after weighing various qualifications, the conclusion is reached that "the inflation potential remaining from the war-time creation of money and liquid assets had probably been absorbed by the end of 1948."

This conclusion, which appears frequently in writings, is based upon comparisons with the 1930's, a period of exceptionally low monetary velocity, or upon adjustments for long-term trends in velocity computed from dubious figures for early years and greatly influenced by the 1930's and 1940's. Experience of the 1920's, particularly 1928 and 1929, indicates what can happen to turnover of money when specula-

tion is rampant. The influence of the tremendous volume of outstanding government securities will tend to make possible greatly increased turnover of money. This is a factor that needs to be given more consideration in monetary analyses.

In considering ways in which a better job of war finance might have been done, Murphy's conclusions are not radical or particularly impressive. In retrospect, somewhat greater resort to taxation would have been feasible, but it "would not have produced miracles." The importance of prompter increases is not mentioned. The author sees no difference in principle between taxation and compulsory borrowing; he gives inadequate consideration to the difficult postwar problem caused by having such a large volume of liquid assets outstanding. In the light of our recent experience with the results of borrowing, all of the wartime discussion of compulsory saving seems futile. There has been no occasion since the war when a release of compulsory savings would have been appropriate. Nevertheless, it is likely that such debts would long ago have been made redeemable, thus adding to postwar inflationary pressures which even so were much too great.

Murphy's other principal conclusions are of a negative nature. He rejects proposals for the offering of irredeemable securities for sale, on the reasonable ground that they would not have been purchased in sufficient amounts to accomplish the desired purpose. He would favor, on the other hand, more extensive use of nonmarketable securities redeemable before maturity, presumably at some sacrifice in yield. These would have the advantage of placing some penalty on redemption without all the disadvantages of market price fluctuations as a means of accomplishing that purpose. This is a proposal which needs much more consideration of all factors than Murphy gave it.

Finally, he rejects suggestions that a general increase in interest rates would have contributed to the success of war finance in attaining the ultimate objective of reducing spending in the war and postwar periods. He admits that higher interest rates "might have been helpful in accomplishing the proximate objective," namely the sale of more securities to nonbank investors, who would have held smaller cash balances. He also admits that low rates might have encouraged excessive capital formation in the postwar period, but capital formation was needed at that time. This is a view that needs qualitative analysis. He fears that if rates had been permitted to rise, they might have continued too high when lower rates again became desirable. It appears that because low rates are beneficial at times, higher rates should never be permitted to occur.

This conclusion leads to the inevitable result that, when borrowing demands are in excess of available savings, interest rates should not

be permitted to rise, but new money should be created. This seems to be a complete negation of any sort of monetary policy aimed at the maintenance of a reasonable degree of stability. Inflation should be permitted until the bubble bursts. This theory should be put in the same class with an earlier held theory that depression should be permitted to continue until a state of equilibrium is reached.

Events since the book was published have resulted both in a higher general level of interest rates and in a narrowing of the margin between long-term and short-term rates. In view of this development, one may expect that it will be possible to avoid another attempt to finance a war with a structure of interest rates that can exist only in depression or by unlimited monetary creation. With experiences of the past as a guide, any attempt to do so would no doubt meet with considerably less success in avoiding inflation than was the case during World War II. Interest rates could be held down to such levels and inflation avoided only through the adoption of much more restrictive measures with respect to taxation, compulsory lending by individuals and institutions, and bank reserve requirements than are suggested by Murphy in this book.

In any period of war finance and, in view of the large and widely held public debt, probably also in times of peace, varying degrees of Federal Reserve support will be needed in the government securities market. The objective of economic policy should be to adopt fiscal, debt-management and other measures which will reduce the need for bond-market support in periods of expansion rather than to rely upon such support to make the task of debt management easy.

INTERNATIONAL DISPARITIES IN CONSUMPTION LEVELS*

By M. K. Bennett†

"Make No Comparisons" was the ninth of Twelve Good Rules for Servants long ago laid down by King Charles of England. It has always been a rule widely observed in the breach. Governments perhaps cast a side glance at it when, in comparisons of nations, the word "underdeveloped" by common consent displaced the word "backward." Comparison nevertheless lay behind the use of either word, as it lies behind the commitment of the United States to extend aid and counsel to underdeveloped countries—some of them, at least—under its foreign assistance programs.

I propose here to attempt—let me stress the word "attempt"—to compare nations with respect to relative consumption levels, limiting the inquiry to 31 nations and to a period shortly before World War II, typically 1934-38. The nations, including some politically dependent groups, comprise all countries of the world, 28 in number, which as of the end of 1935 had populations of 10 million or more,[1] plus three smaller ones[2] chosen to widen the geographical range. The full list appears in Chart 1. The selection is nonpolitical. The populations of these 31 nations made up over 85 per cent of the estimated world total in 1935.

I

The attempt is made here to array or rank these countries with respect to their consumption levels, not to measure degree of difference. This is not the occasion to sharpen definitions of such terms as "consumption level," "level of living," "level of real wages," "level of real income," "stage of economic development," and "level of economic well-being." Some common core of meaning in these words appears to justify the statement that improvement or enlargement or enhance-

* This paper was presented to the annual meeting of the American Economic Association at Chicago, Illinois, December 30, 1950.

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[1] As estimated in League of Nations, Economic Intelligence Service, *Statistical Year-Book . . . 1936/37*, 1937. II. A. 7 (Geneva, 1937), pp. 13-21. The list of countries appears in the charts and appendix tables below.

[2] Cuba, the Union of South Africa, and Australia.

ment of any one of them in so-called underdeveloped countries is an objective of the foreign economic policy of the United States. Yet it seems worth while here to observe again, as J. S. Davis pointed out in his presidential address to the American Economic Association six years ago,[3] that "level of living" comprehends more than "consumption level," and raising it is a superior aim of public policy; that a group with a given "consumption level," which is something experienced, may have a different "consumption standard," which is something desired but not necessarily experienced; and that a group may actually experience a given "level of living" but may aspire to a "standard of living" which is higher. In the matter of international comparison, his important differentiation between "consumption level" and "level of living" perhaps cannot be followed unfailingly. But it is possible to avoid confusing "consumption level" with "consumption standard," and particularly with the term "standard of living," which so rarely is accorded the specific meaning that it ought to have.

I shall endeavor here to cling to the concept of "consumption level" as Davis defined it: "a sort of aggregate of the food, fuel, and other nondurable goods used up, the services of houses, automobiles, clothing, and other durable and semidurable goods utilized, and the services of human beings used, by an individual or group, in a given period of time."[4] Enhancement of national consumption level so construed is today widely accepted as an object of national policy, although that may not have been true two centuries ago, it may not be true universally today, and it might well be qualified as enhancement accomplished without draft on capital assets.

II

Nations, like families, consume food, beverages, tobacco, clothing and items of adornment, cosmetics, fuel, housing and its many appurtenances, transport and communication, books and magazines and newspapers, instruction both secular and religious, medicines and medical ministrations, and so on. There are a good many ways of classifying the goods and services consumed or utilized (a distinction between those words seems unnecessary here) by a nation in a given period of time. I shall make use of the rubrics food and tobacco; medical and sanitary services; housing including fuel, together with clothing; education and recreation; and transport and communication. No outstandingly important aspect of national consumption is omitted in such a classification. Whether or not the goods and services are

[3] "Standards and Content of Living," *Am. Econ. Rev.*, Vol. XXV, No. 1 (March, 1945), pp. 1-15.

[4] *Ibid.*, pp. 3-4.

brought to consumers by individual effort or by action of government is a matter of indifference in the problem of ascertaining relative national status with respect to consumption level.

Some categories of services rendered by durable goods and by persons ought not to be regarded as components of national consumption levels. Armaments and the armed forces constitute the outstanding example, police forces and equipment possibly a less conspicuous one. There would be a consumption level in a slave state heavily burdened with secret police and armed to the teeth. But the very concept of consumption level would be violated if a free state mildly policed and with minimum armament were to be appraised as having a lower consumption level than the slave state merely because the slave state was the more heavily armed and policed. Violence would likewise be done to the concept of consumption level to say of any nation that an augmentation of consumption of military and police services in itself would elevate the national consumption level.

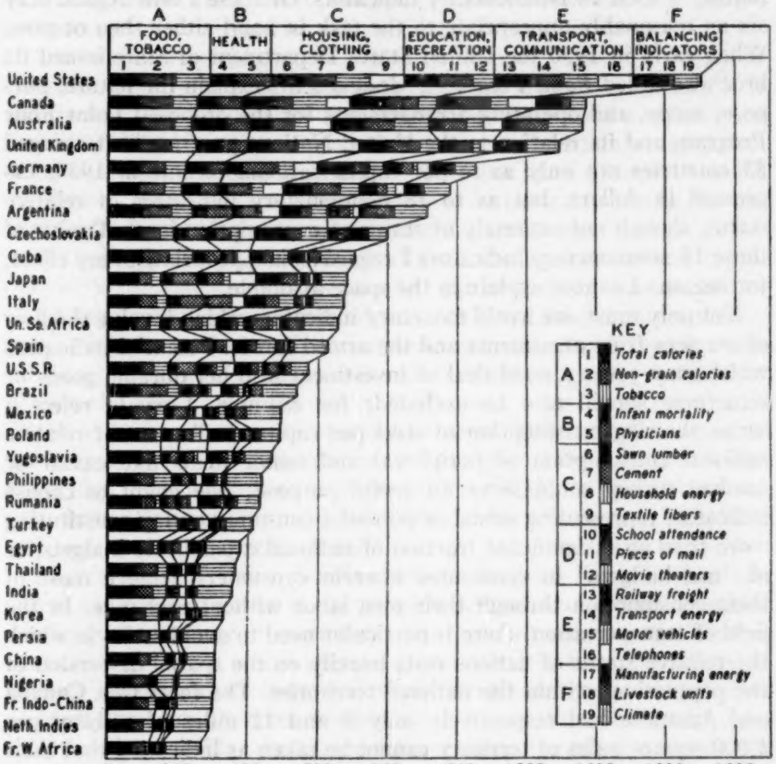
Taking pains to exclude national differences in the quantum and quality of services flowing from armaments and armed forces, how shall one approach the problem of determining the relative prewar status of nations with respect to consumption level?

For economists, perhaps, the first thought might well be to consult available statistics somehow promising to express consumption level in monetary terms—in particular, perhaps, that category of gross national product which is called "personal consumption expenditure," reduced to a per capita basis and converted from expression in national currencies to expression in some single currency or some common denominator such as Colin Clark's "international unit."[5] A little reflection will suggest, however, that estimation of gross national product or personal consumption expenditure is an unknown art in some countries and far from a well-understood and established procedure in others, so that comparability of basic data will be in question where they exist. There will be difficulties, too, in the matter of conversion to a common currency, at least in the not uncommon presence of controlled foreign-exchange rates. Comparability may be jeopardized because price differentials are so diverse from one country to another, and because economies of subsistence type are not easy to compare with the commercialized ones. Personal consumption expenditures would cover poorly such services as accrue to consumers from semi-durable goods and durable goods and structures. Somewhat the same points could be made with reference to estimates of national income, or of national wage rates.

[5] *The Conditions of Economic Progress* (London, 1940), p. 39.

The point in question is basically the probable undependability of monetary series, such as are available, as indicators of differences in national consumption levels. It suffices at the moment to say that there seems to be reason enough to search in other directions, among sta-

CHART 1.—NONMONETARY INDICATORS OF RELATIVE NATIONAL CONSUMPTION LEVELS, 31 COUNTRIES, TYPICALLY 1934-38*



* Data from Table II, page 647.

tistical series strictly nonmonetary in character, for indicators of relative national consumption levels in the prewar period, typically 1934-38. Some international comparisons of money income per capita will be presented later. At this point let me indicate the general outcome of an effort to arrange 31 countries of the world in order of rank with respect to consumption level, as in Chart 1, and comment upon the method used to construct such an array.

III

It is possible to find a substantial number of potential nonmonetary indicators of relative national consumption levels, or of some segment of national consumption levels. When in 1937 I undertook to make an international comparison of what I miscalled relative national "standards of living," in a group of European countries and the United States,[6] I used 14 nonmonetary indicators. Of these I now regard only six as reasonably appropriate to the task in hand either then or now. When early in 1950 the United States Department of State issued its brochure called *Point Four . . .*,[7] designed to "explain the nature, purpose, scope, and operating arrangements for the proposed Point Four Program and its relation to the United Nations program,"[8] it arrayed 53 countries not only as to per capita national income in 1939, expressed in dollars, but as to 18 nonmonetary indicators of relative status, though not expressly of status of consumption level. Twelve of these 18 nonmonetary indicators I regard as inappropriate to my effort, for reasons I cannot explain in the space available.

Not only must one avoid monetary indicators which involve the flow of services from armaments and the armed forces. Potential indicators which may cover a good deal of investment in other durable goods or structures should also be excluded; for example, I would reject a series showing consumption of steel per capita. Indicators of relative national consumption of peripheral and minor items like caviar or smoked turkey could serve no useful purpose; one ought to choose indicators representing actual or potential consumer outlay constituting more than an insignificant fraction of national expenditure budgets, or of "use budgets" in economies wherein consumers achieve most of their consumption through their own labor without exchange. In the field of transportation, there is particular need to avoid series in which the relative status of nations rests heavily on the spatial dispersion of the populations within the national territories. The facts that Canada and Australia had respectively only 9 and 12 miles of railway per 1,000 square miles of territory cannot be taken as indicating that their populations used smaller services of railways than did the populations of France and Germany, where railway mileage per 1,000 square miles was respectively 189 and 253 miles. Why lower the rating of a country because much of its area is tundra, swamp, or desert?

For these and other reasons, notably including overnumerous gaps in data, I have rejected, after compilation, such series as crude death

[6] "On Measurement of Relative National Standards of Living," *Quart. Jour. Econ.*, Vol LI (Feb., 1937), pp. 317-35.

[7] Publication 3719, Economic Cooperation Series 24, released January, 1950.

[8] *Ibid.*, p. iii.

rates, tuberculosis death rates, birth rates, and expectation of life at birth; railway mileage, railway locomotives, roads, and telegraph-wire mileage, each expressed both per 1,000 square miles and per 1,000 of population; ton-miles of freight carried on railways per 1,000 of population; percentage of population illiterate; number of elementary schoolteachers per 1,000 of population; consumption of food fat and of animal protein per person per day; and even a commonly accredited indicator, total food calories consumed per capita per day.

The reasons for rejecting data on national consumption of total food calories consumed per capita per day deserve emphasis, because it is mainly from those estimates that conclusions are drawn such as Lord Boyd-Orr's: "A lifetime of malnutrition and actual hunger is the lot of at least two thirds of mankind."[9] Note the word "hunger," which must mean deficiency of food calories if it means anything. In the absence of estimates of national calorie consumption per head per day—an exceedingly complicated problem of estimation—and of per capita calorie "requirements," solidly based, I venture to say that Boyd-Orr could have found no good basis for making so sweeping a statement. People appear to be unduly impressed when faced with figures indicating a consumption of only 1,900 calories per head per day in 1934-38 in French Indo-China and in the Philippines, whereas in the United States and Canada it was estimated as about 3,100 calories—over 60 per cent higher. This relationship is commonly taken as credible evidence that the populations of French Indo-China and the Philippines must have been hungry, must have had a very low consumption level with reference to quantity of food.

The conclusion does not follow from the given data. It does not follow when, as is certain, the populations of the two Oriental countries consist in much larger proportions of babies and very young children, when normal adults weigh about 30 per cent less than the adults of some Occidental populations, and when the Oriental populations live in decidedly warmer climates. It does not follow if, as seems more probable than improbable, the Oriental populations are physically the less active and waste less of the food estimated to be available at retail level—the basis on which these data on food calories per head per day are estimated. When one considers such facts and probabilities, he can reconcile, for example, a calorie-consumption estimate for Thailand in 1934-38 of 1,756 calories, put out by the Food and Agriculture Organization of the United Nations in 1948,[10] with the statement, "There is no problem of hunger [in Thailand]," put out by the United

[9] "The Food Problem," *Scientific American*, Vol. CLXXXIII (Aug., 1950), p. 11.

[10] *The State of Food and Agriculture 1948* . . . (Washington, D.C., September, 1948), p. 49.

States Department of State in 1950.[11] In subsequent use of food-calorie statistics, I employ for international comparison data recalculated to represent consumption of calories at retail level per 100 pounds of humanity per day. The differences between nations shown by this series are much smaller than the differences indicated by data on calories per head per day. Although these differences may sometimes point to genuine shortage of food calories, some of the indicated differences may reflect nothing more than differences in environmental temperature, physical activity, and wastefulness of food, to say nothing of pure errors of estimate; they do not point conclusively to differences in prevalence of hunger.

The nonmonetary statistical series eventually deemed more or less useful as indicators of relative national consumption levels are then as follows: with respect to food and tobacco, (1) total calories at retail level consumed per 100 pounds of humanity per day, (2) proportion of total calories derived from foodstuffs other than those generally cheapest per 1,000 calories, namely grains and potatoes, and (3) consumption of tobacco per capita; with respect to medical and sanitary services, (4) reciprocals of infant-mortality rates, and (5) physicians per 1,000 of population; with respect to housing, fuel, and clothing, (6) consumption of sawn lumber per 1,000 of population, (7) consumption of cement per 1,000 of population, (8) utilization per capita of inanimate energy in households and other nonindustrial buildings, and (9) consumption per capita of textile fibers (cotton, wool, and rayon); with respect to education and recreation, (10) percentage of school-age population attending school, (11) pieces of mail circulated per capita, and (12) number of moving-picture theaters per 1,000 of population; and with respect to transport and communication, (13) weight per capita of freight carried by rail, (14) utilization per capita of inanimate energy by railways and inland waterways, (15) motor vehicles—trucks, buses, automobiles, motorcycles—per 1,000 of population, and (16) number of telephones per 1,000 of population.

The intention in selecting these 16 indicators was somehow to get at what Davis called "a sort of aggregate" of goods and services used by national populations in a given period of time. It will be apparent that, while some of the indicators pertain as they should to a flow of items into consumption in the period specified, other indicators pertain to the stock of items from which services are assumed to flow. In some aspects of consumption, one is forced to judge the flow from the stock, there being no statistical evidence of the flow. Perhaps no single indicator is as accurate as one could wish; and I have had to make my own estimates for some indicators for some countries. The intention was also

[11] Office of Public Affairs, *Thailand: Its People and Economy* (Publication 3958, Far Eastern Series 36, September, 1950), p. 1.

to provide as wide a coverage as available data permitted of major segments of the consumption level. How successful this effort has been is questionable. There is reason to feel particularly dissatisfied with indicators of relative national status of housing. Series on utilization of cement and of sawn lumber, even when supplemented by estimated per capita consumption of inanimate energy in households, seem insufficient to the purpose. In general, also, the method takes no account of differences in quality of goods and services utilized. In the whole procedure, one is necessarily dealing with rough approximations.

In addition to the 16 indicators pertinent to the several main segments of consumption, I have selected three which I call "balancing" indicators. The first and second of these "balancing" indicators have to do with per capita utilization of inanimate energy in manufacturing establishments, and with livestock units[12] per 1,000 of population. One purpose in including these is to assure a fairer relative rating to countries whose economies are either heavily pastoral-agricultural or heavily industrial. One does not want to penalize, so to speak, either city populations or country populations. Another purpose of including these indicators is to permit expression to be given, among countries where there is practically no manufacturing, to advantages in consumption accruing to those which have the larger livestock populations. The third of these "balancing" indicators pertains to climate. It can be said that peoples living in relatively warm climates have a natural advantage over those living in cold climates in the fields especially of fuel, housing, and clothing, and to some extent of food. Accordingly, although doing so may blur the distinction between consumption level and level of living, I include an indicator which crudely expresses the relative climatic advantage of the warmer countries by assigning a higher ranking to a country that has 365 days a year of temperatures above 41° Fahrenheit than to one which has fewer such days.

Of course there is a question about how to make "a sort of aggregate" of these 19 indicators of relative consumption level. The basic problem is whether or not to assign weights to the several indicators so as to allow for probable differences in importance. I know of no basis for assigning weights. Accordingly, regarding each of the first 16 series as an observation of national differences in one of the major aspects of consumption level, and the other three indictors as corrections of the first 16, I have expressed the basic data as relatives, taking the highest national figure as 100. With respect to any single indicator, a given nation can then score 100 points but no more. With 19 indicators, the maximum score of any nation is 1,900 points.

[12] "Livestock" means horses, mules, cattle, buffaloes, swine, sheep, and goats. Chiefly on the basis of relative value per head in the United States and Canada, one head of cattle or buffalo is taken as 1 animal unit, a pig as .4 unit, a sheep or a goat as .2 unit, a horse or a mule as 2.5 units.

IV

According to the chart, the United States led the 31 nations here considered in total score, yet failed to score the maximum. One or another country scored higher than the United States with reference to calories per 100 pounds of humanity per day, infant-mortality rate, consumption of cement, consumption of inanimate energy in households, consumption of textile fibers, percentage of school-age population attending school, moving-picture theaters per 1,000 of population, livestock per 1,000 of population, and climatic environment. Nevertheless, the general position of the United States was markedly high. The nearest competitor, Canada, scored only about four-fifths as many points; and the lowest-ranking nation, French West Africa, only about one-sixth as many. The gradient from highest scorer downward was initially steep and thereafter more gradual. Only six countries—Canada, Australia, the United Kingdom, Germany, France, and Argentina—scored more than half as many points as the United States. There were 13 countries which scored from a fourth to a half as many points as the United States, and 11 countries which scored less than a fourth as many.

The summation of scores in Chart 1, at the right, purports to indicate approximately the relative rank of the nations considered with respect to national consumption level. I am aware of the statistical impropriety of adding nonadditive series, and I do not wish to imply that precise numerical expression is given to degree of difference in consumption level between any two countries. If French West Africa scored 269 points by the method used and the United States 1,707 points, it is nevertheless not properly to be concluded that the consumption level of 1934-38 was 6-7 times as high in the United States as in French West Africa.

But have we here even what is sought, a trustworthy ranking of the several nations with respect to consumption level? First, of course, comes the question whether the array is according to consumption level, or according to something else. On this question I can say little more than that effort was made to select only such indicators as pertained to consumption level rather than to stage of economic development or to level of living (except as it includes consumption level and except as inclusion of climate may blur the distinction).

The second question is, how dependable are the scores as indicators of relative rank—in consumption level if it be granted that consumption level is in fact being considered. Supports of reliability lie in the facts that the indicators taken together spread over the dominant aspects of consumption, and that the number of indicators is rather

large. One could have more faith in the outcome if it were possible to find a secure basis for assigning weights to the several indicators. And yet fairly severe weightings, as will appear, have only minor effects upon the ranking of the 31 countries.

Obviously, as Chart 1 shows, there is a larger contrast between nations with respect to some indicators than with respect to others. One would expect this, for a population can survive without telephones, moving-picture theaters, or schools, even without any mechanical transport; but it cannot survive without food calories, without some foodstuffs other than grain and potatoes, without infant-mortality rates such that considerable numbers of babies live more than a year. A nation in the lowest stage of culture would be bound to score points on some of the indicators—the above, and climate as well—but not necessarily on others. If we ignore the balancing indicator of climate, the empirical evidence points toward the smallest disparities between nations in calories consumed per 100 pounds of humanity per day, percentage of calories from foods other than grains and potatoes, tobacco consumption, infant-mortality rates, consumption of textile fibers, and, though less markedly, freight carried by rail, and livestock.

Again, it is only to be expected that one national group may express a preference, whether through the markets or through governmental decision nearly independent of popular decision, to stress educational or medical service, let us say, as against transport and communication; another national group might behave in the opposite way. It is interesting to see that Japan scored more points with reference to school attendance and pieces of mail circulated than did Argentina, whereas with reference to indicators of food and tobacco consumption, the position was reversed. No doubt American decisions under foreign assistance programs will give recognition to possible preferences of underdeveloped areas—some to elevate their consumption level in one direction, some in other directions.

One rather striking oddity appears among the countries ranking lowest according to Chart 1. The ranking of Nigeria as 28th among the 31 countries was determined heavily by the relatively high score in consumption of energy chiefly for household uses. This is not to be explained by exceptional need to heat houses, or to cook, or to supply power for electric refrigerators, vacuum cleaners, or electric lights. It appears simply to be that Nigerians burned a great deal of fuel wood in large fires, which are ceremonial or traditional and supposedly helped to keep lions away. This aspect of consumption was not found elsewhere among the 31 countries here considered, but was apparently common enough in some other parts of Africa. Except for this un-

common use of fuel, Nigeria would rank with French West Africa at the bottom of the list.

V

Two statistical series of monetary type are available for comparison with the general nonmonetary indicator of relative status of nations with respect to consumption level. These two are (1) for 22 countries only, per capita national-income estimates, converted to United States dollars, for the year 1939; and (2) for all 31 countries, Colin Clark's estimates, again for 1939, of real income per hour worked, expressed in "international units," which are dollars of the purchasing power of the period 1925-34. Neither of these series was specifically designed to display national disparities in consumption levels. Yet it is easy, even natural, to suppose that fairly substantial differences between countries as shown by either of these series might well point to disparities in consumption levels, even allowing for difference in years covered. Let us see how these two monetary series look in comparison with the nonmonetary indicator thus far discussed.

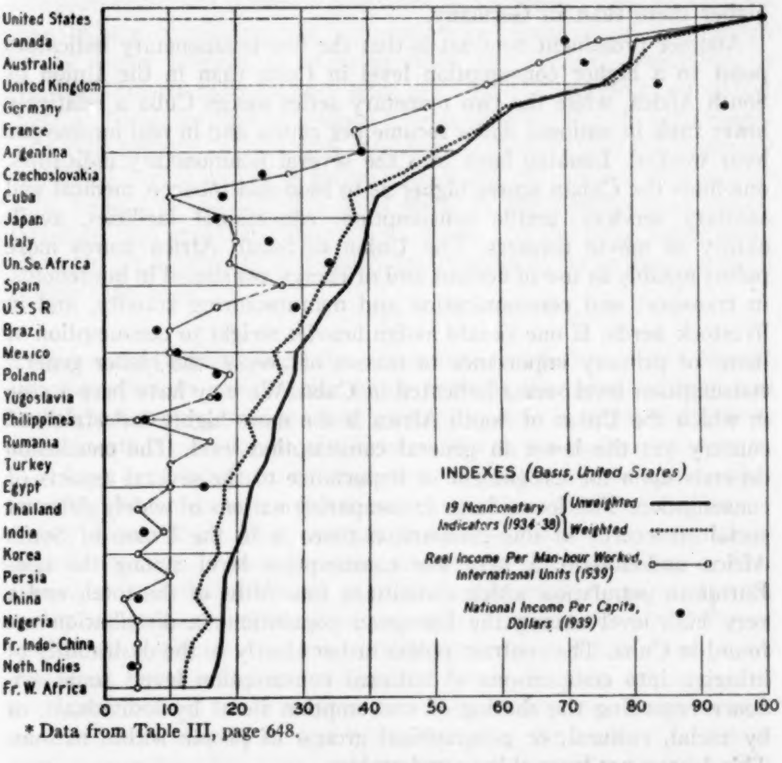
The comparison appears in Chart 2. There the heavy dots represent per capita national income in 1939 expressed in dollars, reduced to relatives with the figure for the United States taken as 100. The connected line of hollow circles represents Colin Clark's estimates of real income per hour worked in 1939 expressed in international units, reduced to relatives with the figure for the United States taken as 100. The heavy solid line represents the total scores for 1934-38, as in Chart 1, of the several countries with respect to 19 nonmonetary indicators of consumption level, with the total scores reduced to relatives and with the figure for the United States taken as 100. Countries are arrayed in the order imposed by this index of total scores. Finally, the dotted line represents the nonmonetary indicator when countries are scored by a system of weighting of the 19 indicators.

That system assumes that a weighting of 3 might reasonably be assigned to indicators of the percentage of calorie intake derived from other foodstuffs than grain and potatoes, to reciprocals of infant-mortality rates, to energy use per capita for household purposes chiefly, and to pieces of mail circulated per capita. It assumes a weighting of ½ is sufficient for climate, and of 1 for total calories consumed per 100 pounds of humanity per day, for tobacco consumption per capita, for lumber and cement consumption, for movie theaters and telephones per 1,000 of population, and for freight carried by rail. Other indicators are assigned a weight of 2.

Even with such weighting, which I do not defend though it may not be utterly absurd, only a few differences in ranking are suggested, as

compared with the unweighted scores. Japan, Poland, Rumania, and Korea are each moved up a step in rank, and the countries immediately above them are moved correspondingly down a step. Nigeria is moved up two steps in rank, but this shift comes solely because of the heavy weighting assigned to household use of energy, wherein the situation of Nigeria was most exceptional.

CHART 2.—NONMONETARY INDICATORS OF NATIONAL CONSUMPTION LEVELS (1934-38) AND REAL INCOME PER HOUR WORKED AND PER CAPITA DOLLAR NATIONAL INCOME (1939)*



* Data from Table III, page 648.

The several curves show both resemblances and contrasts. The general conformation is similar. That happens in large degree because there is full agreement regarding the seven countries which stand highest in the array, and because extent of disagreement is rather small with respect to the nine countries which stand lowest. There are, however, many contrasts—too many to list them all, much less discuss them.

One prominent discrepancy is that the per capita national-income

series puts Germany considerably ahead of the United Kingdom, whereas Clark's series and the nonmonetary indicators do not. German preparations for war in 1939 may contribute to this contrast. If one presses back into the 18 nonmonetary indicators (ignoring the balancing climatic indicator), Germany led the United Kingdom only in consumption of cement, percentage of school-age children attending school, and livestock numbers for 1,000 of population. With the United Kingdom leading Germany in 15 other aspects of consumption, it seems a reasonable inference that the prewar consumption level was higher there than in Germany.

Another prominent contrast is that the two nonmonetary indicators point to a higher consumption level in Cuba than in the Union of South Africa, while the two monetary series assign Cuba a relatively lower rank in national dollar income per capita and in real income per hour worked. Looking back into the several nonmonetary indicators, one finds the Cuban scores higher as to food and tobacco, medical and sanitary services, textile consumption, educational facilities, availability of movie theaters. The Union of South Africa scores more points notably in use of cement and of energy consumed in households, in transport and communication and manufacturing activity, and in livestock herds. If one should assign heavier weight to consumption of items of primary importance to masses of people, the higher general consumption level seems indicated in Cuba. We may have here a case in which the Union of South Africa is the more highly industrialized country yet the lower in general consumption level. The conclusion depends upon the assignment of importance to the several aspects of consumption. This looms large in comparing nations of widely different social structure; in this comparison there is in the Union of South Africa undoubtedly a very low consumption level among the non-European population which constitutes four-fifths of the total, and a very high level among the European population—a distribution not found in Cuba. The contrast points rather clearly to the desirability of bringing into comparisons of national consumption levels some evidence regarding the sharing of consumption items by individuals, or by racial, cultural, or geographical groups of people within nations. This I have not been able to undertake.

Another striking contrast is that between Brazil and Yugoslavia. Brazil leads with respect to nonmonetary indicators of consumption level, Yugoslavia with respect to the two monetary series. In housing, educational facilities, and use of energy in manufacturing, Yugoslavia leads but in no other aspects of consumption, and notably not in con-

sumption of food and tobacco. A strange system of weighting indicators would be required to support an interpretation which indicated the higher consumption level in Yugoslavia. Yet one ought to appraise more closely than I have done the accuracy of basic data.

A final striking contrast is that between the Philippines and Egypt, the Philippines leading according to nonmonetary indicators but not according to the monetary series. With the Philippines leading in consumption of food and tobacco, medical and sanitary services, education and recreation, and livestock count, the indications of Egyptian leadership perhaps in housing and in transport and communication (though not in motor vehicles, or in roads either per 1,000 of population or per 1,000 square miles) do not seem to throw a strong doubt on assignment of the higher rank in general consumption level to the Philippines.

It may perhaps be said with reasonable assurance that the monetary series in Chart 2 do not in general invalidate the ranking of countries with respect to consumption level given by the nonmonetary series. Granting that ranking is insecure in details and the basic information imperfect, it appears to be broadly trustworthy so far as one can bring evidence to bear.

VI

It must be obvious from the charts that just before World War II the disparities in consumption levels between the lowest-ranking and the highest-ranking nations were very wide, even if the method points to rank rather than degree of difference. We do not know what changes may have occurred since, although there is good reason to suppose that consumption levels have fallen in some countries and risen in others.

Nor do we know what changes in relative ranking may appear in decades to come. Some may hope and expect that disparities in consumption level will diminish, even disappear, with American foreign assistance programs aiding in the process. Ignoring the possibility of world war ending in Communist victory, it seems possible that some degree of equalization in consumption levels, as they are suggested here, may occur; for in some aspects of consumption, conspicuously such as school attendance and infant mortality, the leaders of 1934-38 were approaching limits and nations then lagging might catch up. But in a broader view of consumption level, taking account particularly of quality and of new inventions, the leading countries of 1934-38 might well continue to maintain their leadership, or indeed increase it. In any event equalization of national consumption levels seems less important and less realistic as an object of policy than change such that each country consistently shows absolute advances in one aspect or another

TABLE I.—NONMONETARY INDICATORS OF RELATIVE NATIONAL CONSUMPTION LEVELS, 31 COUNTRIES, TYPICALLY 1934–38: ABSOLUTE DATA*
(Highest-ranking country=100, each indicator)

Country	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
United States	2,699	68	3.3	192	1.37	271	133	2,923	12.1	51	161	132.8	10.21	1,413	207	137.0	4,265	1,045	283
Canada	2,640	64	2.3	156	.95	266	68	2,967	8.4	54	(153)	113.7	6.19	1,306	106	110.0	3,145	1,542	164
Australia	2,753	66	1.6	256	.94	168	96	1,183	8.5	49	141	207.4	4.40	907	101	79.0	1,311	5,824	364
United Kingdom	2,635	62	2.3	172	1.13	170	126	2,152	12.3	46	147	112.8	5.75	574	49	51.0	3,758	396	318
Germany	2,558	52	1.9	159	.69	142	150	1,409	8.2	53	83	82.1	5.45	475	25	49.0	2,671	573	223
France	2,662	48	1.6	141	.73	61	107	1,004	7.0	44	134	111.0	4.99	426	56	34.0	1,855	659	284
Argentina	2,946	56	1.9	104	1.05	52	80	239	6.7	31	51	97.4	3.51	432	20	25.5	508	5,164	339
Czechoslovakia	2,525	42	1.3	93	.76	82	67	723	5.1	51	62	158.2	3.18	311	10	8.6	1,888	557	209
Cuba	2,925	51	2.2	(95)	.63	30	38	207	4.8	20	48	87.2	3.48	143	7	10.2	275	1,843	365
Japan	2,637	23	.9	89	.87	89	70	593	9.1	42	63	27.0	1.49	115	2.3	15.4	863	83	278
Italy	2,647	33	1.0	97	.87	42	93	186	4.2	34	58	94.9	.79	151	11	12.4	590	344	327
Union So. Africa	2,272	28	1.0	(71)	.41	(27)	78	435	3.2	22	33	35.8	2.50	823	27	13.7	1,072	2,446	365
Spain	2,792	42	1.5	81	.93	22	33	167	2.4	24	36	114.5	1.12	151	8	12.2	370	684	346
U.S.S.R.	2,819	24	1.3	59	.76	118	27	630	3.7	27	34	17.3	1.83	392	1.4	4.9	752	828	187
Brazil	2,685	52	1.2	(87)	.31	45	12	258	3.8	(17)	(24)	31.2	.58	152	3.4	4.6	80	1,752	365
Mexico	2,051	45	.8	78	.51	16	16	103	2.9	20	11	44.1	.67	92	5.0	6.4	356	1,768	365
Poland	2,567	33	.6	72	.32	35	33	676	2.8	34	22	24.7	1.65	201	1.0	6.8	575	696	209
Yugoslavia	2,824	24	.6	71	.31	63	32	311	3.3	23	28	26.3	1.02	103	1.0	3.6	161	732	280
Philippines	2,441	33	1.7	73	.26	23	13	66	(2.5)	17	(19)	26.3	(.05)	18	3.3	1.9	48	443	365
Rumania	2,849	27	.4	56	(.31)	50	23	246	2.6	30	17	19.4	1.01	95	1.2	3.6	255	691	234
Turkey	2,831	29	2.0	80	(.14)	12	13	166	3.5	9	(6)	8.6	(.08)	53	.5	1.2	74	994	276
Egypt	2,669	28	.4	61	.21	10	25	126	3.1	12	7	8.0	.35	54	1.9	3.5	24	244	365
Thailand	2,447	41	.9	(67)	(.02)	19	6	26	(1.2)	12	(3)	8.2	(.06)	17	.6	.2	2	824	365
India	2,478	31	1.3	62	.12	3	2	39	2.2	7	3	2.8	.23	42	.3	.2	52	637	358
Korea	2,237	23	1.2	(83)	.13	3	14	194	(2.4)	8	17	(6.2)	(.20)	33	.4	2.4	254	111	230
Persia	2,126	33	1.0	(48)	(.01)	(8)	3	150	(2.5)	(3)	(0+)	2.3	(.05)	3	.5	(0+)	5	603	336
China	2,625	24	1.4	50	.04	4	1	91	1.7	6	2	.5	.07	8	.1	.4	23	244	291
Nigeria	(2,154)	(27)	.1	58	.01	6	2	1,413	.6	2	(0+)	.6	(.05)	13	.3	(0+)	17	279	365
Fr. Indo-China	2,499	23	.7	(67)	(.02)	10	4	53	1.1	4	(1)	3.9	.04	15	.7	.3	28	255	365
Neth. Indies	2,387	16	.9	(71)	.02	1	2	45	.9	6	1	5.0	(.05)	15	1.0	.2	37	166	365
Fr. W. Africa	2,154	27	.2	58	(.01)	6	8	29	(.6)	1	(0+)	.8	(.05)	18	1.2	(0+)	29	464	365

* Figures in parentheses represent author's interpolations. Principal sources: UN, FAO, *Food Balance Sheets* (April, 1949) [Cols. 1, 2]; *World Fiber Survey 1947* (August, 1947) [Col. 9]; *Forestry and Forest Products: World Situation 1937–46* (1946) [Col. 6]; *Yearbook 1948* and *1949* [Col. 3]. USDS, *Point Four . . .* (January, 1950) [Col. 5]; *Energy Resources of the World* (June, 1949) [Cols. 8, 14, 17, 19]. USDC, BFDC, *Foreign Commerce Yearbook, 1936* [Cols. 10, 11, 13, 15, 16]; *Foreign Commerce Weekly*, May 31, 1947 [Col. 12]. UN, *Statistical Yearbook 1948* [Col. 7]. IIA, . . . *Compendium International de Statistiques, 1924–1938* (1948) [Col. 18]. *Population Index* (July, 1949) [Col. 4].

Definitions of indicators in numbered columns: (1) Total food calories at retail level consumed per 100 lbs. of humanity per day, 1934–38. (2) Percentage of total food calories derived from foodstuffs other than grain and potatoes, 1934–38. (3) Tobacco (raw equivalent) utilization per capita, kgms., 1934–38. (4) Reciprocals of infant-mortality rates (deaths of infants under 1 yr. per 1,000 live births), 1936–40. (5) Physicians per 1,000 of population, various years 1938 to 1947. (6) Per capita utilization of sawn lumber, kgms., chiefly 1937, some 1947. (7) Per capita utilization of cement, kgms., 1934–38. (8) Per capita utilization of energy in households and public and nonindustrial buildings, kw.-hrs. elect. equiv., 1937. (9) Per capita availability of textile fibers (cotton, wool, rayon), kgms., 1938. (10) Percentage of school-age children (under 20) attending school, 1934. (11) Pieces of mail handled per capita, 1934. (12) Moving-picture theaters per million of population, 1940. (13) Freight carried by rail per 1,000 of population, M.T., 1935. (14) Per capita utilization of energy by railways and waterways, kw.-hrs. elect. equiv., 1937. (15) Automobiles, trucks, buses, and half the number of motorcycles per 1,000 of population, 1936. (16) Telephone instruments per 1,000 of population, 1935. (17) Per capita utilization of energy in industry, kw.-hrs. elect. equiv., 1937. (18) Animal units per 1,000 of population, 1938. (19) Number of days per yr. with temperature above 41° F.

Table II.—Nonmonetary Indicators of Relative National Consumption Levels, 31 Countries, Typically 1934–38: Relative Data*

(Highest-ranking country = 100, each indicator)

Country	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20(Σ)
United States	91.6	100.0	100	75.0	100	100.0	88.7	98.5	98.4	94.4	100.0	64.0	100.0	100.0	100.0	100.0	100.0	17.9	78	1,707
Canada	89.6	94.1	70	60.9	69	98.2	45.3	100.0	68.3	100.0	(95.0)	54.8	60.6	92.4	51.2	80.3	73.7	26.5	45	1,375
Australia	93.4	97.1	48	100.0	69	62.0	64.0	39.9	69.1	90.7	87.6	100.0	43.1	64.2	48.8	57.7	30.7	100.0	100	1,365
United Kingdom	89.4	91.2	70	67.2	82	62.7	84.0	72.5	100.0	85.2	91.3	54.4	56.3	40.6	23.7	37.2	88.1	6.8	87	1,290
Germany	86.8	76.5	58	62.1	50	52.4	100.0	47.5	66.7	98.1	51.6	39.6	53.4	33.6	12.1	35.8	62.6	9.8	61	1,058
France	90.4	70.6	48	55.1	53	22.5	71.3	33.8	56.9	81.5	83.2	53.5	48.9	30.1	27.1	24.8	43.5	11.3	78	984
Argentina	100.0	82.4	58	40.6	77	19.2	53.3	8.1	54.5	57.4	31.7	47.0	34.4	30.6	9.7	18.6	11.9	88.7	93	916
Czechoslovakia	85.7	61.8	39	36.3	55	30.3	44.7	24.4	41.5	94.4	38.5	76.3	31.2	22.0	4.8	6.3	44.3	9.6	57	803
Cuba	99.3	75.0	67	(37.1)	46	11.1	25.3	7.0	39.0	37.0	29.8	42.0	34.0	10.1	3.4	7.4	6.4	31.6	100	708
Japan	89.5	33.8	27	34.8	64	32.8	46.7	20.0	74.0	77.8	39.1	13.0	14.6	8.1	1.1	11.2	20.2	1.4	76	685
Italy	89.9	48.5	30	37.9	64	15.5	62.0	6.3	34.1	63.0	36.0	45.8	7.7	10.7	5.3	9.1	13.8	5.9	90	676
Union So. Africa	77.1	41.2	30	(27.7)	30	(10.0)	52.0	14.7	26.0	40.7	20.5	17.3	24.5	58.2	13.0	10.0	25.1	42.0	100	660
Spain	94.8	61.8	45	31.6	68	8.1	22.0	5.6	19.5	44.4	22.4	55.2	10.9	10.7	3.9	8.9	8.7	11.7	95	628
U.S.S.R.	95.7	35.3	39	23.0	55	43.5	18.0	21.2	30.1	50.0	21.1	8.3	18.0	27.7	.7	3.6	17.6	14.2	51	573
Brazil	91.1	76.5	36	(34.0)	23	16.6	8.0	8.7	30.9	(31.5)	(15.0)	15.0	5.7	10.8	1.6	3.4	1.9	30.1	100	540
Mexico	69.6	66.2	24	30.5	37	5.9	10.7	3.5	23.6	37.0	6.8	21.3	6.6	6.5	2.4	4.7	8.3	30.4	100	495
Poland	87.1	48.5	18	28.1	23	12.9	22.0	22.8	22.8	63.0	13.7	11.9	16.2	14.2	.5	5.0	13.5	12.0	57	492
Yugoslavia	95.9	35.3	18	27.7	23	23.2	21.3	10.5	26.8	42.6	17.4	12.7	10.0	7.3	.5	2.6	3.8	12.6	77	468
Philippines	82.9	48.5	51	28.5	19	8.5	8.7	2.2	(20.0)	31.5	(12.0)	12.7	(.5)	1.3	1.6	1.4	1.1	7.6	100	439
Rumania	96.7	39.7	12	21.9	(23)	18.5	15.3	8.3	21.1	55.6	10.6	9.4	9.9	6.7	.6	2.6	6.0	11.9	64	434
Turkey	96.1	42.6	61	31.2	(10)	4.4	8.7	5.6	28.5	16.7	(4.0)	4.1	(.8)	3.8	.2	.9	1.7	17.1	76	413
Egypt	90.6	41.2	12	23.8	15	3.7	16.7	4.2	25.2	22.2	4.3	3.9	3.5	3.8	.9	2.6	.6	4.2	100	378
Thailand	83.1	60.3	27	(26.2)	(2)	7.0	4.0	.9	(10.0)	22.2	(2.0)	4.0	(.6)	1.2	.3	.1	.0	14.1	100	365
India	84.1	45.6	39	24.2	9	1.1	1.3	1.3	17.9	13.0	1.9	1.4	2.2	3.0	.1	.1	1.2	10.9	98	355
Korea	75.9	33.8	36	(32.4)	10	1.1	9.3	6.5	(20.0)	14.8	10.6	(3.0)	(2.0)	2.3	.2	1.8	6.0	1.9	63	331
Persia	72.2	48.5	30	(18.8)	(1)	(3.0)	2.0	5.1	19.5	(5.6)	(.2)	1.1	(.5)	.2	.2	(.0)	.1	10.4	92	310
China	89.1	35.3	42	19.5	3	1.5	.7	3.1	13.8	11.1	1.2	0.2	.6	.6	.0	.3	.5	4.2	80	307
Nigeria	(73.1)	(39.7)	3	22.7	1	2.2	1.3	47.6	4.8	3.7	(.0)	.3	(.5)	.9	.1	(.0)	.4	4.8	100	306
Fr. Indo-China	84.8	33.8	21	(26.2)	(2)	3.7	2.7	1.8	8.9	7.4	(.6)	1.9	.4	1.1	.3	.2	.7	4.4	100	302
Neth. Indies	81.0	23.5	27	(27.7)	1	.4	1.3	1.5	7.3	11.1	.6	2.4	(.5)	1.1	.5	.1	.9	2.9	100	291
Fr. W. Africa	73.1	39.7	6	22.7	(1)	2.2	5.3	1.0	(4.8)	1.9	(.0)	.4	(.5)	1.3	.6	(.0)	.7	8.0	100	269

* For sources, and definitions of indicators, see footnotes of Table I.

TABLE III.—NONMONETARY INDICATORS OF RELATIVE NATIONAL CONSUMPTION LEVELS COMPARED WITH MONETARY SERIES

Country	Absolute Data				Relative Data			
	Nonmonetary Indicators		Monetary Series		Nonmonetary Indicators		Monetary Series	
	1	2	3	4	1A	2A	3A	4A
United States	1,707	3,025	1.00	554	100.0	100.0	100	100
Canada	1,375	2,533	.75	389	80.6	83.7	75	70
Australia	1,365	2,437	.66	403	80.0	80.6	66	73
United Kingdom	1,290	2,317	.58	468	75.6	76.6	58	84
Germany	1,058	1,835	.49	520	62.0	60.7	49	94
France	984	1,733	.38	283	57.6	57.3	38	51
Argentina	916	1,524	.39	218	53.7	50.4	39	39
Czechoslovakia	803	1,368	.28	134	47.0	45.2	28	24
Cuba	708	1,130	.10[a]	98	41.5	37.3	10	18
Japan	685	1,149	.19	93	40.1	38.0	19	17
Italy	676	1,085	.20	140	39.6	35.8	20	25
Union So. Africa	660	1,053	.19	188	38.7	34.8	19	34
Spain	628	991	.27	—	36.8	32.8	27	—
U.S.S.R.	573	944	.17	158[b]	33.6	31.2	17	29
Brazil	540	888	.10[a]	46	31.6	29.3	10	8
Mexico	495	804	.10[a]	61	29.0	26.6	10	11
Poland	492	838	.19	95	28.8	27.7	19	17
Yugoslavia	468	728	.16[a]	96	27.4	24.1	16	17
Philippines	439	654	.05[a]	32	25.7	21.6	5	6
Rumania	434	688	.16[a]	—	25.4	22.7	16	—
Turkey	413	620	.10[a]	—	24.2	20.5	10	—
Egypt	378	547	.10	85	22.2	18.1	10	15
Thailand	365	544	.05[a]	—	21.4	18.0	5	—
India	355	507	.09	34	20.8	16.8	9	6
Korea	331	521	.05[a]	—	19.4	17.2	5	—
Persia	310	447	.10[a]	—	18.2	14.8	10	—
China	307	418	.03	29	18.0	13.8	3	5
Nigeria	306	492	.05[a]	—	17.9	16.2	5	—
Fr. Indo-China	302	402	.05[a]	—	17.7	13.3	5	—
Neth. Indies	291	372	.05[a]	22	17.0	12.3	5	4
Fr. W. Africa	269	364	.05[a]	—	15.8	12.0	5	—

[a] As indicated by a geographical grouping including the country specified.

[b] Specified in source as estimate by P. A. Baran, "National Income and Product of the USSR, 1940," *Review of Economic Statistics* (November, 1947).

Explanation of series: (1) Summation of relatives of 19 indicators, unweighted, from Col. 20, Table II. (2) Summation of relatives of 19 indicators, from Table II, weighted as follows: weight of 3—indicators 2, 4, 8, 11; weight of 2—indicators 5, 9, 10, 13, 14, 15, 17, 18; weight of 1—indicators 1, 3, 6, 7, 12, 16; weight of ½—indicator 19. (3) "Real income per man-hour worked," 1939, in international units ("quantity of goods and services exchangeable for $1 over the period 1925–34"), from Colin Clark, "World Resources and World Population," *Proceedings of the United Nations Conference on the Conservation and Utilization of Resources* (1950), Vol. 1, p. 26. (4) "Per capita income, U. S. dollars per annum," 1939, from USDS, *Point Four . . .* (January, 1950), pp. 115–16. (1A–4A) Relatives of data in Cols. 1–4, U.S. = 100.

of consumption level. Existing international organizations might perform a useful service in carefully selecting and compiling or urging the compiling of nonmonetary statistical series which could tell us, country by country and year by year, what changes are occurring in various segments of national consumption levels. There would be need to consider indicators other than those used here. There would be still greater usefulness in extending such evidences of change to national levels of living.

The circumstances of life of the modal family in those countries ranking lowest in consumption level in 1934-38 would have appeared appalling indeed to anyone brought up in the consumption level of the United States, and so they would appear today.

That modal family gained its living in agriculture. Its residence was more commonly in a village than on a farmstead. Around that village the American observer would see no railroad tracks or paved roads, no telephone wires. In it he would see no movie theater and few shops, no farm machinery but some simple tools and a few draft animals, no offices of doctors and dentists. He would be struck by the paucity of metal in the construction of buildings, and by a lack of paint inside and out. Within the dwellings he would note an abundance of children and probably of insects. He would observe a meagerness of floor space, a lack of subdivision into rooms, a lack of glazed windows, of screens, of electric or gas lighting, of bathrooms or piped-in water, of modern stoves, of chimneys, of refrigerators, of beds with springs, of newspapers or books, of tables or chairs, of shoes; a lack of distinction between undergarments and outer garments; a lack of pots and pans and plates, of soap. He might see an open fire of charcoal or wood, even of dried dung in some areas, sometimes a kerosene lamp and a hand loom. He would find the meals in rice-growing areas typically of boiled rice, probably milled crudely by the housewife, accompanied by vegetables and fruits or a sprinkling of dried fish but rarely by meat, fat, or sugar; and in nonrice-growing areas typically of soup or porridge or of flatcakes of crushed grain, with vegetables and fruits and occasionally a bit of meat.

Yet he might not find that daily work in the fields was exhausting or that people were hungry or sullen. A low consumption level need not imply a low degree of satisfaction of felt wants, or a high level of discontent. Perhaps an understanding of the relationship of consumption level to consumption standard, still better of level of living to standard of living, in the various nations of the world would prove more fruitful in study of political and economic change than appraisal of disparities in consumption level. Certainly the argument that low consumption level leads to discontent to revolution to aggressive war carries little conviction in spite of the fragment of truth in it.

PRICE DETERMINATION IN THE LAKE ERIE IRON ORE MARKET

By L. GREGORY HINES*

The largest iron and steel industry in the world has been built from the iron ore deposits found in the border states of Lake Superior.[1] The ore has been mined in Minnesota and Michigan, shipped down the Lakes to Erie ports for eastern use, or diverted to Lake Michigan and the closer Chicago-Gary area. The Lake Superior ore deposits, formerly rich and plentiful, have exerted a strong influence upon the location and development of heavy industry in the United States, and have provided the essential base for the sustained and rapid industrialization of this country. The costs of mining and moving this raw material to the blast furnace have been kept low through the prevailing open-pit methods of extraction and through the use of specialized ore carriers on the Great Lakes waterway.

The Lake Superior iron region has furnished more ore for the American iron and steel industry than all other domestic and foreign sources combined—averaging approximately eighty-five per cent of all iron ore used in the United States during the past two decades. During this same period, one Lake Superior range—the Mesabi of Minnesota—has contributed over eighty per cent to the total Lake Superior production, conferring the advantages of high-grade, easily mined iron ore upon the firms owning deposits in this district.[2] The production and pricing of iron ore from other regions of the country affects, by comparison with that from the Lake Superior district, a small number of iron and steel producers confined to somewhat isolated centers of production. The pricing practices developed in the Lake Superior district, on the other hand, affect intimately the very heart of the American iron and steel industry. The distribution of iron ore ownership within the iron and steel industry and the limited number of quasi-independent ore factors serving this industry have been important economic facts of

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[1] The Lake Superior iron ranges are the Mesabi, Vermilion, and Cuyuna in Minnesota; the Gogebic, Marquette, and Menominee in Michigan; the nonshipping deposits of the Barboo and Mayville in Wisconsin; and the recently developed deposits in Canada.

[2] For information on the production of United States iron ore districts, see *Mining Directory of Minnesota, 1950* (Minneapolis, *Bulletin of the University of Minnesota Institute of Technology*, Vol. 53, No. 23, May, 1950).

life in the growth and development of steel firms in the American economy.

Lake Superior iron ore production by operating concerns for the period 1945-1949 is shown in Chart I. The leading firm in both production of ore and high-grade reserves is the Oliver Iron Mining Company, a subsidiary owned by the United States Steel Corporation. Producing almost half of the total shipments from the Lake Superior region, the Oliver Company restricted its ore sales to other members of the Steel Corporation until 1940. The distribution of the Oliver Company's sales of ore since 1940 is shown in Table I.

TABLE I.—DISTRIBUTION OF OLIVER IRON MINING COMPANY'S ORE SALES BETWEEN U. S. STEEL SUBSIDIARIES AND OUTSIDE FIRMS
(Gross tons)

Year	U.S. Steel	Outside Sales	Year	U.S. Steel	Outside Sales
1939	22,847,451	202	1945	33,531,429	9,276,672
1940	30,879,171	869,563	1946	26,669,957	7,431,732
1941	36,965,618	2,534,057	1947	35,737,870	6,931,491
1942	41,879,260	5,204,779	1948	38,469,386	5,724,833
1943	41,068,547	5,424,501	1949	33,241,829	4,114,326
1944	38,127,104	6,678,757			

Source: Subcommittee on the Study of Monopoly Power, "Memorandum I," *Exhibits*, Serial 14, Part 4-B (Committee of the Judiciary, House of Representatives, 81st Cong., 2nd Sess.), p. 496.

Pickands, Mather & Company, the second largest ore shipper in the Lake market, sells little ore on the open market. Most of its shipments result from the management of ore properties for steel firms and the sale of the limited amount of ore which it does own to such firms under long-term contract. The Cleveland-Cliffs Iron Company, on the other hand, owns or leases in its own right most of the ore which it sells, thus representing the closest approach to an independent ore firm of any size to be found in the Lake Superior area. In characterizing Cleveland-Cliffs as an independent ore firm one must, however, accept a rather loose definition of the term. It has close stock and/or management relationships with Republic Steel, Youngstown Sheet & Tube, Wheeling Steel, Inland Steel, and Jones & Laughlin. The M. A. Hanna Company, formed as a partnership in the late 1860's, became the raw material department for the National Steel Corporation in 1929 when the latter firm was organized. Although the Hanna Company carries on limited ore business with other firms, it is an affiliate of National Steel and its main ore business is serving that firm. Oglebay, Norton & Company, which has the smallest ore shipments of the firms

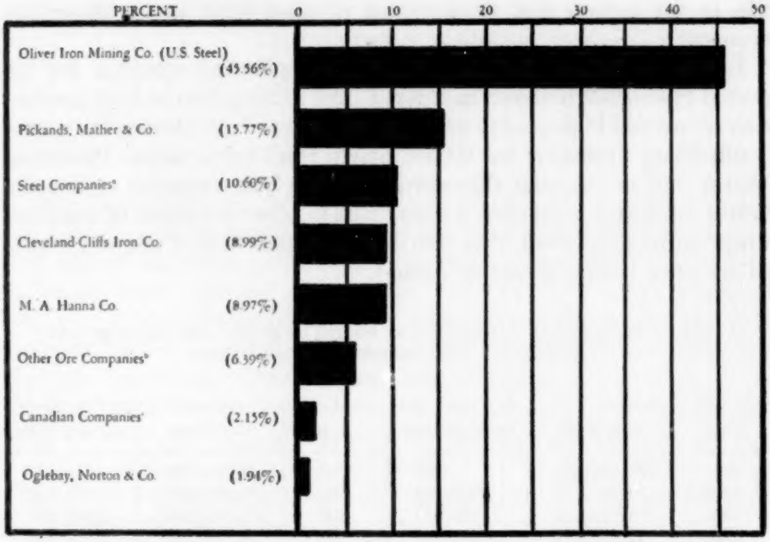

CHART I. LAKE SUPERIOR IRON ORE SHIPMENTS, 1945-1949 BY PRINCIPAL PRODUCERS

Source: Computed from Exhibit S-43, Subcommittee on Study of Monopoly Power, *Steel Exhibits,* Serial No. 14, Part 4-B, p. 69.

[a] Eight companies in 1945; seven in 1946-1949.

[b] 1945, 5 companies; 1946, 7; 1947, 10; 1948, 13; 1949, 12.

[c] Algoma Ore Properties, Ltd., and Steep Rock Iron Mines, Ltd.

In 1937 these percentages were as follows: Oliver Iron Mining Company, 42.2%; Pickands, Mather & Co., 21.9%; Steel companies, 14.9%; Cleveland-Cliffs Iron Co., 9.1%; M. A. Hanna Co., 3.5%; Other ore companies, 2.9%; Canadian companies, 0; Butler Brothers, 2.9%; Oglebay, Norton & Co., 2.6%. TNEC, *Hearings,* Part 18, p. 10426.

listed in Chart I, is a managing firm which operates the properties of the owning steel firms under their direction.[3]

The early history of the price-making process in the Lake Erie ore market was characterized by a series of frustrating experiences with mercurial pooling arrangements leading to eventual price stability as a result of changes in the structure of the industry. Concentration of ownership and control of ore reserves by the integrated steel producers and a small number of quasi-independent ore factors took place steadily after the turn of the 20th century until now the iron ore industry may be accurately described as a captive of the steel industry. Extreme stability has marked the Lake Erie iron ore price, so called because the charges include transportation rates for delivery to Lower Lake ports. Iron ore sold for $4.25 per ton from 1925 until 1929, in which year the price was raised to $4.50; it remained at $4.50 per ton until

[3] For information on the interrelations of the ore and steel firms, see TNEC, *Hearings,* Part 18, *passim.*

1937, when it was increased to $4.95. In 1940, the first year in which the Oliver Iron Mining Company sold ore on the open market, the price fell to $4.45, and did not change until 1946 when it was increased

TABLE II.—LAKE ERIE BASE PRICE OF IRON ORE*
(Gross tons)

Season	Date Price Established	Old Range Bessemer	Old Range Non-Bessemer	Mesabi Bessemer	Mesabi Non-Bessemer	High Phosphorus
1925	Apr. 4, 1925	$4.55	$4.40	$4.40	$4.25	$4.15
1926	Mar. 17, 1926	4.55	4.40	4.40	4.25	4.15
1927	Apr. 8, 1927	4.55	4.40	4.40	4.25	4.15
1928	Apr. 16, 1928	4.55	4.40	4.40	4.25	4.15
1929	Mar. 22, 1929	4.80	4.65	4.65	4.50	4.40
1930	Apr. 1, 1930	4.80	4.65	4.65	4.50	4.40
1931	Apr. 15, 1931	4.80	4.65	4.65	4.50	4.40
1932	June 3, 1932	4.80	4.65	4.65	4.50	4.40
1933	June 7, 1933	4.80	4.65	4.65	4.50	4.40
1934	May 21–26, '34	4.80	4.65	4.65	4.50	4.40
1935	Apr. 23, 1935	4.80	4.65	4.65	4.50	4.40
1936	Apr. 1, 1936	4.80	4.65	4.65	4.50	4.40
1937	Mar. 8, 1937	5.25	5.10	5.10	4.95	4.85
1938	May 23, 1938	5.25	5.10	5.10	4.95	4.85
1939	May 3, 1939	5.25	5.10	5.10	4.95	4.85
1940	Apr. 16, 1940	4.75	4.60	4.60	4.45	4.35
1941	Apr. 17, 1941	4.75	4.60	4.60	4.45	4.35
1942	Apr. 10, 1942[a]	4.75	4.60	4.60	4.45	4.35
1943	——[a]	4.75	4.60	4.60	4.45	4.35
1944	——[a]	4.75	4.60	4.60	4.45	4.35
1945	——[a]	4.95	4.80	4.70	4.55	4.55
1946	——[a]	5.45	5.30	5.20	5.05	5.05
1947	Jan. 25, 1947	5.95	5.80	5.70	5.55	5.55
1948	Mar. 27, 1948	6.60	6.45	6.35	6.20	6.20
1949	Dec. 30, 1948	7.60[b]	7.45[b]	7.35[b]	7.20[b]	7.20[b]
1950	Jan. 26, 1950	8.10[c]	7.95[c]	7.85[c]	7.70[c]	7.70[c]

* Based on the following analysis: Bessemer 51.50% Fe and 0.045% Phos.; Non-Bessemer, 51.50% Fe.

[a] Prices controlled by U.S. Office of Price Administration.

[b] Six percent increase in dock unloading charge of $0.18, effective January 11, 1949.

[c] After January 25, 1950, increases or decreases, if any, in Upper Lake rail freight, dock handling charges, and taxes thereon are for buyer's account.

Source: Mining Directory of Minnesota, 1950, p. 234.

to $5.05 per ton. Since 1946, the price has changed more frequently: 1947—$5.55; 1948—$6.20; 1949—$7.20; and 1950—$7.70.[4] Lake Superior iron ore is priced in five classifications: Old Range Bessemer, Old Range Non-Bessemer, Mesabi Bessemer, Mesabi Non-Bessemer,

[4] See Table II. Above prices are for Mesabi Non-Bessemer 51.50 Fe.

and High Phosphorus ore. The division between Old Range and Mesabi ores is made primarily in terms of the structure and density of the ores, whereas the classification of Bessemer, Non-Bessemer, and High Phosphorus is dependent upon the ore's phosphorus content. Within these five broad divisions prices for the ore are adjusted on the basis of 51.50 per cent Fe as the standard.[5]

The procedure followed in the establishment of the season's price for iron ore has facilitated the practice of price leadership in the industry. Prior to the opening of the shipping season on the Great Lakes, the price of iron ore (including shipping charges to Lower Lake ports) is fixed by the publication in the Cleveland *Plain Dealer* of the first market transaction involving a substantial sale of iron ore for delivery during the forthcoming season.[6] This event is not, however, left to the

[5] The 51.50 iron natural standard used in computing the price of the various grades of ores should not be confused with the average iron content of Lake Superior ore shipments. Ore shipments will of course vary from the pricing standard as indicated by the 1949 average of 50.39 Fe for all Lake Superior shipments in comparison with the higher average of 51.38 Fe for the 1940-1949 period. (*Mining Directory of Minnesota, 1950,* p. 225.) All ores containing .045 per cent phosphorus or less are classified as Bessemer; more than .045 per cent phosphorus, but not more than .180 per cent, are Non-Bessemer; and above .180 per cent phosphorus are sold as High Phosphorus ores. Price premiums are given for low phosphorus content (less than .045 per cent), for high manganese content, and for lump structure. Such premiums vary and are determined by negotiation between the buyer and seller. Penalties are imposed for high silica content and for fine structure.

The price adjustment for iron content higher than the standard (51.50 Fe) is applied at a proportional rate of increase, whereas the penalty for ore below the standard results in a progressive decrease in the price. Thus, to obtain the price of ore in terms of its iron content, the base price is divided by 51.50, the number of iron units in the base ore. The resultant quotient is the base unit value which is used to determine additions to, or subtractions from, the standard base price established in the market. For example, when the ore is higher than 51.50 in iron content, the base unit value is added for each unit or fraction of a unit above the standard; when the ore is less than 51.50 in iron content, the base unit is substracted for each unit or fraction of a unit below the standard. For less than 50.00 Fe, but not less than 49.00 Fe, deduction is made at the rate of one and one-half times the base unit value. Ore of iron content less than 49.00 is priced at a deduction of twice the base unit value. The following illustration applies this technique to Mesabi Non-Bessemer ore with a base price of $7.20 per ton for standard ore of 51.50 Fe.

60.00 Fe ore	Unit Value = $.13981	Lake Erie price = $8.39
55.00 Fe ore	Unit Value = .13981	Lake Erie price = 7.69
51.50 Fe ore	BASE ORE PRICE SET BY MARKET =	7.20
50.00 Fe ore	Unit Value = $.13981	Lake Erie price = 6.99
49.00 Fe ore	Unit Value = .20972	Lake Erie price = 6.78

Below 49.00 Fe, deduct $.27962 per unit.

(See *Mining Directory of Minnesota, 1950,* p. 50.)

[6] For the years from 1936 to 1941 and 1947 to 1949 (omitting the OPA control period), the ore firm establishing the seasonal Lake Erie base price has been identified three times: 1940, Pickands, Mather & Co.; 1948, Cleveland-Cliffs Iron Co.; and 1949, Cleveland-Cliffs. Generally the announcement of the establishment of the new price is reported as follows: "One of the large ore shippers yesterday announced that it had made some sales of iron ore at an advance of 50 cents a ton over last season's price, and that its schedule of prices for 1947 delivery is as follows. . . ."—Cleveland *Plain Dealer,* January 25, 1947.

The trade journals, *Steel, Iron Age,* and *Engineering & Mining Journal,* generally reprint the information from the Cleveland *Plain Dealer* without significant alteration.

caprice of the market. The crucial sale is invariably made by one of the larger ore companies—although the parties to the transaction are seldom identified—and is carefully selected so as to embody the most generous valuation which is possible in view of the season's expectations and consistent with the interests of the more powerful parent iron and steel industry. The selection of the "correct" official price for publication is undoubtedly made difficult because of the various forces which must be considered. A price must be chosen which will promote over-all stability of the ore industry, one which will not cause serious discontent among the ore-producing concerns—especially the more nearly independent firms—or result in serious "shading" of the official ore price. Thus, Cleveland-Cliffs, which owns much of the ore that it sells, has a considerably different interest in the ore price from that of Oglebay, Norton, which merely acts as a management concern for the owners of ore properties, or the M. A. Hanna Company, which is an affiliate of National Steel. In turn, the Oliver Iron Mining Company occupies a unique position among all the ore firms in the Lake Superior region: it is the largest ore shipper in the region, a subsidiary of the largest iron and steel producer in the industry, and also sells an appreciable amount of ore in the open market to rival steel producers. Different problems are raised by the variety of relationships which exist between ore concerns and purchasing and owning steel producers. As a result, the price of iron ore represents a conciliation point which the majority of ore producers and steel firms find tolerable if not completely satisfactory. Because of the prevalence of long-term ore contracts and the steel industry's preoccupation with stability, the previous year's iron ore price has usually been reinstated during periods of normal business conditions.

Two types of sales occur in the Lake Erie iron ore market: (1) spot, or seasonal sales, and (2) long-term contract sales. Spot sales cover ore transactions made during the current shipping season, whereas long-term contract sales are the result of an agreement covering more than the current shipping season. Arrangement may be made between an ore concern and a steel producer, or an ore concern and an independent mine operator, whereby the former promises to buy a specified tonnage of ore per year for a period of, say, ten years. The price of ore may be set at a specific figure, or, as is more frequently the case, the ore will be priced at a discount of the annual seasonal price. During hardship periods it is unlikely that relaxation of the price agreement under long-term contract will be permitted by the seller, except as a result of extremely unusual circumstances; instead, some reduction in tonnage delivery may be allowed. The Lake Erie base price is the standard used in computing the actual, realized

price for both long-term contract sales and spot sales, with the latter price more closely approximating the Lake Erie published price.

With the decline to virtual insignificance of the larger independent ore firms in the Lake Superior region, the importance of spot ore sales has decreased, although the Oliver Iron Mining Company has adopted a policy of replacing long-term ore contracts made in 1940 by short-term sales on a year-to-year basis. More ore is likely to be sold by spot purchases during a depression when the demand for ore is less and when steel producers may attempt to take advantage of "distress ore." Such ore usually comes on the market at quotations considerably below the published Lake Erie price.[7] On the other hand, during periods of heavy demand for iron and steel products, the output of ore mines is usually contracted for well in advance of the shipping season, thus eliminating a substantial part of the sales which otherwise take place during the shipping season. Under prosperity conditions the problem faced by the steel firm is to obtain a sufficient amount of ore to maintain capacity output of the steel mill, rather than to purchase ore at the lowest possible price. Because of the great fluctuations in iron and steel sales, ore production and sales have varied over an extremely wide range—with ore sales falling at a greater rate than steel sales and increasing more rapidly than the output of iron and steel production. Undoubtedly, one of the more important causes of instability of ore sales is the purchasing steel firm's practice of withholding buying as long as possible in anticipation of greater discount from the published ore price, whereas the attempt to cover capacity requirements for the future during a period of business recovery stimulates heavy production and sale of iron ore.[8] As a result, spot sales have played a prominent part in the Lake Erie ore market during depression periods to the extent that purchasing firms are not bound by long-term contracts, but have played a considerably smaller part during prosperity periods.

[7] C. M. White, president of Republic Steel, testified before the Subcommittee on the Study of Monopoly Power that Republic's ore-buying policy is adapted to the conditions of the ore market. He said: "At different times and in different business cycles we use different methods. At one time—this was prior to the war—it was the fixed policy of our corporation that we did not want to be committed for more than about one-half of our ore. In other words, there was distress ore coming on the market quite frequently, due to the fixed carrying charges that many companies had—steel companies and ore companies—and we could buy ore on a better basis than we could own it, or make long-term contracts. Then, with the war and postwar periods coming along, when the tremendous ore reserves had been used up due to the war and postwar activity, after that situation changed we had gone over to an ownership or long-time contract, because there just was not enough ore, as we saw it, to play the market."—SSMP, *Hearings*, Serial 14, Part 4-A, p. 240.

See *ibid.*, p. 445, for a statement on the unimportance of spot ore sales at the present time.

[8] It should be noted, however, that as ore-ownership becomes concentrated in the hands of producing steel firms such bargaining for ore purchase becomes less important.

The influence of the smaller ore firm upon the dominant ore concern's decisions and actions in establishing the Lake Erie base price is illustrated by the operations of Butler Brothers during the period in which it was an independent producer in the Lake Superior region.[9] In comparison with the Oliver Company and the quasi-independent ore firms, Butler Brothers was a small firm, but during depression periods its ore production was large enough that by a concentration of output in an early season sale it presented a threat to the establishment and maintenance of the published Lake Erie price by the larger ore firms. Although Butler Brothers held no stock connection with steel producers to aid it in disposing of ore, it maintained a close working relationship with the Pickands, Mather & Company and the M. A. Hanna Company. Butler Brothers entered into an arrangement with Pickands, Mather which gave the latter concern an option to purchase Butler's surplus tonnage of from thirty to fifty per cent of its annual production, depending on Butler Brothers' existing contracts and the condition of the ore market.[10] As a result, Butler Brothers' production and price policies were closely tied to those of the dominant ore concerns.

However, Butler Brothers' problems were not solved by alignment with the Pickands, Mather Company. The gain from price cutting was a tantalizing possibility, although apparently kept in check by the penalty of discovery. As the depression deepened during the 'thirties, Butler Brothers chafed more and more under the restraint of a price established by the larger firms. The following quotations indicate the dilemma faced by the smaller concern in deciding whether to follow or break away from the price leader in the industry.

> I had a talk with Elton Hoyt yesterday and he talked me out of quoting Ford on any of our grades at less than the full market price. He said the market for standard ores is still a little shaky and that it would be dangerous to quote Ford anything under the full price.
> On the Hume quotation, there would be too much danger of the Corporation learning that we were using any other basis for figuring other than we submit to them. And I'm afraid that our goose would be cooked if Shiras ever heard of it.

[9] Butler Brothers was absorbed by the M. A. Hanna Company in the fall of 1948.

[10] The purpose of this arrangement between Butler Brothers and Pickands, Mather is indicated in the following inter-department memorandum from Patrick Butler, in charge of ore sales, to Emmett Butler, president of the company. The memorandum is dated September 4, 1928.

> I have talked with Hoyt [Elton Hoyt, president of Pickands, Mather] this afternoon . . . he wants first call on any additional tonnage our present properties might show up. This is to keep us out of the market as much as possible. This first call means that should we feel we ought to produce more, or that we are in a position to take on additional contracts, that we should offer the ore to them before we do so to anyone else. . . .—TNEC, "Exhibit 1362," Part 18, p. 10435.

In light of the above I am submitting today quotations . . . at the full season's prices.[11]

As iron ore became more difficult to sell, the desirability of capturing one of the season's large sales became more attractive. Butler Brothers decided to exert its influence in such a way that it would obtain the sale of its ore or the protection from the larger firms. The Ford Motor Company's call for ore bids brought this matter to a head.

I have before me Cliff Wyman's letter of the 26th which states, among other things, that Ford's inquiry for 50,000 tons of ore is out. Now the question arises whether to wait for the other big ore merchants to quote Ford before making our quotation or to attempt to arrange some trade with Ralph Archibald and get the business without the formality of quoting a price. I do not know, of course, whether or not this can be done. . . .

I think, possibly, this would be a good time to say to our customers, particularly P. M. [Pickands, Mather] and Hanna Co., "What are you going to do with this year's business, and what price are you going to put on ore?" They will no doubt answer to that that they do not know because they have not had their ore meeting, and stall beyond the date that Ford has fixed to close the bidding, and probably slip in a bid in the meantime. Why not tell them that we want to move tonnage and that we are either going after the Ford business in our own way or they are going to guarantee us an additional tonnage over their minimum equal to that of Ford's inquiries? . . .[12]

Butler Brothers' threat to dispose of ore by price cutting obtained the desired concession from Pickands, Mather, since a subsequent letter indicated that the larger concern had agreed to take Butler's surplus tonnage and that no break in the price to be quoted Ford was to take place.[13]

For most ore firms, especially the larger affiliated concerns, the seasonal price of ore is less important as a determinant of the amount of ore it sells than as a standard which establishes the realized price on the ore sold under long-term contract. It is at this point that a conflict arises between the interests of the smaller independent and the larger firm. In order to keep the smaller concern from breaking or drastically undercutting the published price, thereby reducing the income of the larger firm from its long-term contract sales, it may be desirable for the latter to absorb the tonnage of the small firm if it could make a large sale at the start of the season. However, once the price for the season has been established, price shading through negoti-

[11] "Exhibit 1370," *ibid.*, p. 10441. (Letter dated March 29, 1929.)

[12] "Exhibit 1378," *ibid.*, p. 10446. (Letter dated March 28, 1934.)

[13] "Exhibit 1369," *ibid.*, p. 10441. (Letter dated April 10, 1934.)

ation has little effect upon the ore moved under contract as long as it does not result in widespread price cutting throughout the industry. One method of localizing such price cutting is for the larger ore firm, which may act as the management agent for the small mine operator, to refuse to handle shipments on which price cutting is thought to be excessive.[14] However, the uniformity and stability of the published Lake Erie price should not be interpreted as proof of the complete absence of price flexibility and competition in the sale of iron ore. Competition is sometimes approached, if not actually achieved, by ore sales at quotations below the published price and by the somewhat more "gentlemanly" practice of sweetening the quality of the ore shipment.

The United States Steel Corporation faces a complex problem in the selection of a policy to follow in the Lake Erie iron ore market. The Corporation is clearly the dominant firm and price leader in the iron and steel industry.[15] It is also the dominant firm in the Lake Superior iron ore region in terms of yearly ore shipments and high-grade reserves. Until 1940 it followed a passive rôle in the Lake Erie ore market, mining its own needs without selling to firms outside of the Corporation family, and apparently without attempting to influence the determination of the Lake Erie price. However, with the steady depletion of the high-grade ore reserves in the Lake Superior region, the Corporation abandoned its policy of market isolation. It made ore available to its rivals through open-market sales by the Oliver Iron Mining Company, initially on a long-term contract basis and later by year-to-year sales. At first glance such policy seems highly paradoxical since it appears to be advantageous solely to the rivals of U.S. Steel. However, a number of factors undoubtedly encouraged the Corporation to adopt this policy. First, ore hardships on the part of U.S. Steel's rivals might be expected eventually to lead to Congressional criticism and possible antitrust action against the Corporation. Second, the heavy fixed charges in the form of taxes on unused reserves provided an economic incentive for the sale of the ore. Third, expiration of leases in the near future encouraged mining of ore at low royalty rates before higher rates were imposed in new leases, or in order to work out some of the "sunk" costs of opening the mine. Fourth, the sale of ore to rivals, rather than proving a competitive disadvantage, might afford a subtle but most effective means of influencing rival steel firms' policies. The selection of 1940 as the year to inaugurate open-market

[14] "Exhibit 1372," *ibid.*, p. 10442.

[15] See Joint Committee on the Economic Report, "December 1949 Steel Price Increases," *Hearings* (81st Congress, Second Session, January 1950), *passim;* and *ibid.*, *Report*, p. 18, *et seq.*

ore sales was dependent upon market conditions in the Lake Erie ore trade.[16] This year apparently presented the first opportunity since the depression for the Oliver Company to enlarge its production by selling ore in the open market without seriously endangering the market price of ore.

The Corporation also faces a problem in the selection of a pricing policy to follow in the Lake Erie iron ore market. Support of the highest possible price for iron ore is by no means an unmixed blessing for the Corporation. A high iron ore price encourages the development and exploitation of lower grade ore reserves and increases the use of scrap as raw material sources, both of which are less completely controlled by the Corporation than high-grade ore reserves. In addition, taxes levied on the Corporation's reserve ore holdings increase in direct proportion to increases in the price of iron ore. Thus if sales in the open market at the higher price are not large, the Corporation may receive only slight financial benefit from the higher ore price.[17]

Certain obvious advantages, however, accrue to the Corporation from the support of a high iron ore price. Although the Oliver Mining Company bills the iron and steel-producing subsidiaries of the Corporation for ore at a discount of the market price,[18] from the Corporation's standpoint this charge is primarily a bookkeeping cost. For rival

[16] SSMP, *Hearings*, Part 4-A, Serial 14, p. 531.

In a departure from its usual terse report that the Lake Erie base price had been established by an announcement of sales by one of the larger ore firms, the Cleveland *Plain Dealer* of April 17, 1940, carried the following news item:

> Pickands, Mather & Co., one of the largest operators in the iron ore trade, announced late yesterday several sales of the mineral for delivery during the present lake navigation season on the basis of \$4.45 a gross ton delivered at Lake Erie ports for Mesabi non-Bessemer grade with guaranteed 51.50 per cent natural iron content. . . . Base price of \$4.45 represents a reduction of 50 cents a ton from prices announced Jan. 3. . . . In recent months the iron ore trade has been somewhat disturbed, first by the TNEC . . . then by the decision by the United States Steel Corp. to enter the open market through its subsidiary, Oliver Mining Co. Oliver shortly afterward announced a sale to the Ford Motor Co. at a price which did not include transportation down the lakes. While the price unannounced was reported lower, the grade of ore covered by the order never was revealed.

It should be noted that the Ford purchase has been one of the critical early season sales, frequently threatening to establish the Lake Erie base price at a lower figure than had prevailed in the previous year. A surprising absence of comment in the industry's trade journals followed the Corporation's decision to sell ore in the open market.

[17] Minnesota property taxation is the most important in this respect since it is levied on the value of the ore reserves in the ground, with value assessment based on the published Lake Erie iron ore price. In 1948 the Oliver Iron Mining Company paid a total of nearly \$18 million in taxes to Minnesota, of which half was general and personal property taxation. See "Iron Country," *Engineering & Mining Journal*, Vol. 150 (Aug. 1949), p. 114.

[18] In the nine-year period from 1941 to 1949, the Oliver Iron Mining Company billed the steel-producing subsidiaries at an average discount of 25 cents per ton below the published price. The highest discount was given in 1941 of 40 cents per ton and the lowest in 1944 of 15 cents per ton. For the past three years, the discount has been 30 cents per ton. "Exhibit S-214d," SSMP, *Exhibits*, Serial 14, Part 4-B, p. 497.

steel producers, however, the purchase of ore from non-affiliated ore concerns—such as the Oliver Company—constitutes an actual cost outlay. Thus, by supporting a high price for iron ore, the Corporation is in a position to maximize return at the raw material level while allowing rivals to flourish—within limits—in the sale of semi-finished and finished iron and steel products.[19] Command over a rival's source of raw material provides many of the advantages of monopoly control of the industry without some of the disadvantages of a cruder exercise of power. Thus, only an unusually courageous management is likely to pursue a policy which encroaches seriously on the product market of its raw material supplier, and the dominant supplier can look with relative indifference upon changes in the structure of the industry, secure in the knowledge that any serious threat to its supremacy can be checked by a change of policy at the raw material level.

[19] See SSMP, *Hearings*, Serial 14, Part 4-A, p. 633, and "Exhibit S-299," *Exhibits, ibid.*, p. 555.

COMMUNICATION

A Note on the Secular Consumption Function

This brief note involves two matters relating to the so-called secular upward drift of the consumption function. The first has to do with the chronology and early discussion of this problem; the second has to do with the question whether an S-curve which assumes the form of a straight line through the origin (*viz.*, a constant *ratio* of saving to income cyclically, or secularly, or both) is at variance with Keynesian theory.

Empirical evidence tends to support the view that *cyclically* the consumption-function curve crosses the 45° line, while *secularly* it is (quite probably) a straight line through the origin. Various theoretical analyses have, moreover, been made supporting these conclusions.[1] Taken together these conclusions suggest an upward secular drift of the cyclical or short-run consumption function.

My own first published statement relating to the secular function antedated the publication of Kuznets' long-run data.[2] It appeared in my chapter in *The Structure of the American Economy*, Part II, "*Toward Full Use of Resources*," published in June, 1940, National Resources Planning Board, page 32. The statement follows:

> Cyclically, the percentage of income saved rises and falls as income rises and falls. If, however, one concentrates attention exclusively upon the rising secular trend in real income, there is no conclusive evidence that a higher *percentage* of income is saved now than formerly. But if we save the same percentage of income (at corresponding phases of the cycle) as in earlier periods, it follows that the *amount* saved is higher, since real incomes have risen.

It may perhaps be useful to say a word about the views (with respect to the cyclical and secular movements of consumption in relation to income) generally held by economists long before the appearance of Keynes' *General Theory*. First, everyone was aware of the fact that consumption had risen *secularly* more or less in proportion to the great increase in real income.[3] This

[1] See Hicks' discussion of the pros and cons in his *Trade Cycle*, Chapter III.

[2] Kuznets first presented his data before the University of Pennsylvania Conference of September 17, 1940.

[3] Innumerable references could easily be cited. In my *Economic Stabilization in an Unbalanced World* (1932) pp. 373-74, this matter is discussed very much along the lines of the effect of one's location on the Lorenz income distribution curve on the ratio of saving to income. Among other things relating to trends during the preceding century I said: "Real wages have tripled and quadrupled, yet the lower fringe of workers finds it as difficult as ever to escape destitution. . . . Every increase in real wages brought a corresponding increase in the requirements necessary for what was considered ordinary decency in a civilized country. . . . Higher real wages for the unskilled have not materially eased

opinion was strongly supported, not only by general observation, but by studies such as those by Bowley and Stamp. Second, it was a well-established fact in business-cycle literature that investment fluctuates percentage-wise more than income over the *cycle*. This means, of course, that *cyclically* consumption rises less rapidly proportionately than income during the boom years and falls less rapidly in depression. Here we have, then, a consumption-income relationship which looks very much like our familiar cyclical consumption function which crosses the 45° line.

Broadly speaking, economists have long been aware of the difference between the *cyclical* and the *secular* movements of consumption in relation to income. To this general knowledge, long and widely held, Keynes indeed added something very important, *viz.*, a precise formulation of the consumption-function concept, together with the correlative concepts—the marginal propensity to consume and the multiplier. Moreover, he advanced a *theory* in which this and other functions, relevant to the determination of aggregate demand are integrated. The earlier general knowledge and rather vague conceptions about the *cyclical* and *secular* behavior of consumption in relation to income did not supply a *theory*.

There is a second matter, to which I wish to make reference. Keynes was highly cautious in the formulation which he made of the functional relation of consumption to income. He did not say that consumption rises proportionally less rapidly than income. He emphasized again and again that his postulate was a very limited one, namely, that "when aggregate real income is increased aggregate consumption is increased, but not so by much as income" (*General Theory*, p. 27). In other words *some* part of an *increment* of income is saved. Thus, if in fact consumption always remained, *both cyclically and secularly*, a fixed percentage of income (*i.e.*, assumed the form of a straight line through the origin), this relationship would still conform to Keynes' law. While Keynes himself gave no special consideration to the secular aspects of the problem, it is nevertheless a fact that his formulation of the consumption function, *if applied secularly*, would be quite in conformity with Kuznets' long-run data.

If, however, it is believed (as indeed virtually all writers on the consumption function have believed) that consumption increases cyclically *proportionally* less than income, then it is simply a matter of common sense to suppose that there must be *some* upward shift *secularly* of the consumption function. This would, however, not mean that the percentage of income which is consumed necessarily remains rigidly constant over time. Indeed Kuznets' data reveal considerable variability and of course many factors could enter to

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the difficulty of making both ends meet. Bowley and Stamp have shown that over long-run periods the percentage differential between different economic groups has not materially changed. As incomes rose all around, the whole manner of living changed. It was just as difficult as ever for the unskilled to keep up with the procession. . . . Every assimilated group strives to live somewhat like other people. Every level feels the pull of the standards of those just a step higher in the social scale. The lower the income, the more difficult it is to set aside any surplus above what is absolutely necessary in order to live according to minimum current standards."

change the ratio. But even a little reflection on the course of economic history is enough to disclose the unmistakable fact that consumption has risen, broadly conceived, *more or less* in proportion to the vast upsurge in real income which the last 150 years have witnessed.

The Kuznets' data were of great interest, but they were certainly not surprising. My own views, which were in conformity with his data, had already been published, as indicated above, some months earlier.[4] The apparent *secular* constancy in the *ratio* of consumption to income raises indeed interesting questions with respect to the factors which account for this constancy if indeed it be true; similarly the apparent decline in the ratio of consumption to income when income rises cyclically also raises highly interesting questions;[5] and finally the historical development of the cyclical and secular movements, and how these are related to each other, deserve extensive research. These problems have indeed been illuminated by the brilliant contributions of Samuelson, Modigliani, Dorothy Brady, Duesenberry, and others. Much more work needs to be done. Fortunately, economics neither began nor ended with the publication of the *General Theory*.

Alvin H. Hansen*

[4] I later discussed this matter in greater detail in my *Fiscal Policy and Business Cycles* (1941), pp. 231-34, where I made reference to the Kuznets data.

[5] Keynes had indeed something to say about this. But it was not, as we have seen, a part of his theory proper.

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BOOK REVIEWS

Economic Theory; General Economics

Keynes's "General Theory." By A. C. Pigou. (London and New York: Macmillan. 1950. Pp. viii, 69. 6*s*.)

The appearance of Professor Pigou's lectures on Keynes's *General Theory* is a notable event. Over the course of many years Professor Pigou has made his own contributions, which have enlarged and encircled the corpus of economic doctrine. Many of his findings in welfare economics, public finance and in certain departments of monetary theory have become part of the mental furniture of trained economists, and are likely long to remain so. To achieve his results, he used certain techniques of analysis, which were appropriate to his purposes. In the later part of his career a somewhat younger economist came forward offering new techniques of analysis for use by researchers. Those who find these new techniques helpful would by no means claim that they are appropriate or relevant to the whole field of economic investigation. It may well be that in many of the fields which Professor Pigou has cultivated the older sets of tools will continue to be deemed the most suitable. In these lectures Professor Pigou sets out to assess the worth of the new tools for their own specific purposes.

First, it must be said that Professor Pigou's book is steeped in a spirit of fine generosity towards his younger rival. He pays a notable tribute to Keynes's wide powers.[1] He pays tribute also to the value of some of Keynes's specific contributions and withdraws an important criticism made in an earlier notice. A reviewer might well wish to dwell with satisfaction on this appreciative essay, and not mar the happy harmony by fresh criticism. To do so would be to fail in proper respect for a work from Professor Pigou; anything from his pen calls for and deserves an attempt at rigorous criticism.

Keynes's work, like other systematic work in this field, comprises elements which can be challenged in different ways. First, there are the definitions of terms and the identical propositions entailed by those definitions. For instance, there are Keynes's definitions of saving and investment and the proposition that flows from those definitions that saving must always be equal to investment. In this Keynes departed from usage that was current in certain contemporary writings and, it is fair to add, in his own previous work. In the case of a good writer one cannot usually say that such definitions are wrong. He may, of course, have been careless and overlooked some phenomenon which ought to have been explicitly included or excluded in some general concept; an alleged identity may not indeed be so, on account of

[1] It may be worth drawing attention to the coincidence that at the conclusion of his lectures Professor Pigou selected for quotation the poem by Browning, two lines from which I had quite independently chosen to cite two years ago in writing my *Life of Keynes*.

such an oversight. In the main, however, the criterion of criticism will not be the correctness of the definition, but its utility. Definitions group together certain individually distinguishable phenomena by selecting points of similarity. The whole question is whether such groupings are illuminating and helpful to further research. Do they present the multifarious facts of our complicated economic life in forms which guide us to a better understanding?

Next we have certain functional relations, for instance, the proposition that the amount of consumption depends upon the size of income. These kinds of relations may be criticized not only from the point of view of their convenience as aids to thought, but also from that of their correspondence with the facts. Does the amount that a man consumes in fact at all depend on the size of his income? We may think that the answer to this question is obvious, but it must be asked. In economics the value of one variable usually depends on a number of other variables. The theorist may select one of the governing variables as being much more important than the others. A considerable part of Keynes's distinctive contribution consisted in doing precisely this. In certain cases he assumed that the influence of certain variables was so unimportant that they could for practical purposes be neglected. Of course we are bound to ask whether this ascription of the main importance to a particular variable corresponds with the facts of the case. Finally, a theorist may use his own tools to reach certain broad conclusions of general interest.

Now in the opening chapters Professor Pigou sets out some of Keynes's definitions and functional relations. In the central core of the book, which I take to be Chapters X-XIV, he considers the validity of certain conclusions that Keynes reached. In doing this he uses some of Keynes's definitions and functional relations as previously set out; but he uses others which Keynes certainly did not accept. The arguments of these sections appear to be so widely at variance with Keynes's views as to force one to conclude that what Professor Pigou is seeking to do in them is not to utilize or assess Keynes's functional relations, but to test whether Keynes's *conclusions* are correct by using his own entirely different theory of the functional relations involved.

This is an interesting enterprise. It is important, however, to emphasize that it is a strictly limited one. Professor Pigou's slim volume may appear to the reader to be purporting to assess the pith and essence of Keynes's *General Theory*. To those who attach great value to the *General Theory* its importance seems to lie much more in the tools of analysis that it provides than in certain widely popularized conclusions. Professor Pigou re-examines and assesses the conclusions by reference to certain functional relations which he considers valid; he thereby implicitly rejects the Keynesian relations, since the two sets (Pigovian and Keynesian) are not in all respects consistent with one another. But he does not explicitly challenge the more important Keynesian relations—except in one case to which I shall revert. I infer that this volume does not really grapple with what is most important in the *General Theory*.

I first draw one example from Professor Pigou's choice of concepts. All through his discussions of the reasons for certain conclusions, variations in

the "income velocity of money" play an important part. This is quite at variance with Keynes's view. Keynes observed (*General Theory*, p. 201) that "it is not always made clear whether the income velocity of money is defined as the ratio of Y to M or as the ratio of Y to M_1." (Y is income, M the total quantity of money and M_1 that part of the total quantity of money which serves the transactions and precautionary motives.) Keynes thought that the most convenient definition of income velocity of money is the ratio of Y to M_1 and held that in relation to all short-period changes, which are those that Professor Pigou is investigating, this income velocity may be regarded as constant. Consequently, if this is what Professor Pigou means by income velocity, his assumption that variations in it have important short-period causal effects is in conflict with Keynes's view. The ratio of Y to M was not a concept which Keynes deemed to be of any utility in the analysis of these subjects; like Fisher's price level, it was too much of an omnium gatherum; "the use of the term" (income velocity of money) "obscures, I think, the real character of the causation and has led to nothing but confusion" (*General Theory*, p. 299); in making it play a key part, therefore, Professor Pigou is not expounding Keynes, but in conflict with him. But he does not criticise Keynes's objection to income velocity nor defend his own use of it in this context.

In order to judge Professor Pigou's work it may be well to concentrate on two central sections, his discussion of liquidity preference and of the "supply schedule for investment." In both these sections he presents what appears to be a chain of causation, in the form *a* entails *b*, *b* entails *c*, *c* entails *d*, etc. In order to be quite sure that I was doing justice to Professor Pigou, I felt it necessary to consider very carefully whether the word entail was supposed to express causal relation. Was it possible, on the contrary, that when Professor Pigou said that *a* entailed *b*, all he meant was that *a* entailed a whole equilibrium position of which *b* was one element? To put the matter otherwise, might he with equal propriety and the same meaning have said that *a* entailed *d*, *d* entailed *c*, *c* entailed *b*? I rejected this possible interpretation for three reasons. In the first place it seemed that, had he meant this, he would have given the reader some kind of warning. The definite sequences that he gives do suggest that each term is deemed to be specifically causally related to the preceding one. His language is certainly unnatural, if he did not mean this. Sometimes he substitutes "Therefore" for "entails." Secondly, it struck me that, though in many cases where he says that *a* entails *b*, this is quite contrary to Keynes's view, yet it is often quite consistent with the older ways of thought that Keynes rejected. Thirdly—and this seemed decisive—Professor Pigou in recapitulating one of his chains in an abbreviated form, actually uses the word "causes" (on line 16 of p. 43.)

I now address myself to a particular causal chain. "In Keynes's scheme a lower liquidity preference schedule entails a larger income velocity of money" (p. 45). Keynes certainly did not hold that a lower liquidity preference schedule directly causes a larger income of velocity of money in either sense of income velocity. Furthermore, in Keynes's scheme a lower liquidity preference schedule does not *necessarily* entail a larger income velocity of

money by remote causation, although it probably does so. In Keynes's scheme a lower liquidity preference schedule directly causes a higher level of security prices. If the elasticity of the marginal efficiency of capital schedule happened to be zero—as it might be in a severe depression—there would be no further consequence, and the income velocity of money in both senses would remain unchanged.

It is important to dwell a little on this point. Keynes divided all liquidity (money) into two parts, designated M_1 and M_2, because he deemed that this helped to bring out certain truths relating to causation. In his view the liquidity preference which governs the size of M_1 is entirely consequential on the level of employment, prices or money wages. If therefore we assume a difference in liquidity preference as the starting point of a chain of causation, we must in "Keynes's scheme" assume that it is a difference of point of view among those holding M_2. Those who hold M_2 do so because they think that at the existing prices of securities it is wise to hold some part of their capital assets in the form of money. A spontaneous difference in liquidity preference can therefore have no other immediate consequence than a larger or smaller demand for alternative capital assets. Since neither the quantity of money in M_2 nor that of alternative capital assets is assumed to be different, the new point of view must lead to a different valuation in terms of money of existing capital assets.

Now it may be that Keynes's division of all holders of money into these two classes was wrong. It may be that a change of point of view can arise in the minds of some holders of money spontaneously—and *not* in consequence of a change of income, prices or wage-rates—which leads them to seek to exchange their money for goods that they intend to consume. I have no doubt that Keynes would have admitted this possibility, while arguing that it was not likely to be quantitatively important. If Professor Pigou wishes to argue that a change in liquidity preference entails (presumably as proximate cause) a change in the income velocity of money, it is incumbent on him to join issue with Keynes on his fundamental reasonings about why people hold money. He does not do so. I cannot see how the words "in Keynes's scheme" with which he prefixes the sentence quoted above can be justified.

I proceed to give Professor Pigou's chain on page 45 at length:

> In Keynes's scheme a lower liquidity preference schedule entails a larger income velocity of money; therefore more money income; therefore higher prices, and therefore, the money rate of wages being given, more employment. This extra employment, carrying with it extra income, as valued in labour, entails in turn a larger amount of investment supplied and engaged. . . . At the same time the extra employment and the lower rate of interest associated with it both make on the side of supply for larger consumption.

This is Professor Pigou's chain of causation. Keynes's would be as follows: A lower liquidity preference entails a higher level of security prices, that is, a lower rate of interest; therefore more investment (unless the elasticity of the marginal efficiency of capital schedule were zero) and probably more consumption (if the multiplier is greater than one); therefore more employment

and probably higher prices. On Keynes's definition of income velocity, there will be no difference in that, but there will be a higher ratio of Y to M. Thus Keynes's chain of causation is totally different. If Professor Pigou gets the same end result by his chain of causation, that still leaves the question open as to which chain of causation, if either, is correct. It is to be noticed that Keynes's reasoning does not depend, as Professor Pigou's does, on "the money rate of wages being given." The money rate of wages is not relevant, save that, if there happened simultaneously with a decrease of liquidity preference to be a sufficiently large autonomous rise of money wage-rates to offset it by draining money from M_2 into M_1 there would be higher prices but no increase of investment, consumption or employment (and no fall of employment).

I now take another passage (p. 39). Professor Pigou compares two situations, *a* and *b*, there being greater thriftiness in *a*, and purports to give "Keynes's scheme of thought."

> Since in respect of any given rate of interest and of employment the amount of investment supplied is larger in situation *a* than in situation *b*, for equilibrium, with the set-up I am using, the amount demanded and so the actual amount provided must also be larger. But, if the amount provided is larger, then the demand function being given the rate of interest must be lower. This entails that the income velocity of money and so money income must be smaller. This yet again entails that prices are lower and so, the money rate of wages being given, that employment is discouraged. In short, greater thriftiness carries with it a smaller total of employment.

The only similarity to Keynes's thought that I can find in this sequence is the end result. In the course of it Professor Pigou diverges from Keynes's thought in a most notable manner. By "the amount of investment supplied" he means what Keynes calls saving. Keynes's proposition that saving and investment must be equal to one another does not entail that the amount of investment "demanded" must be equal to saving. So long as we retain the assumption of Professor Pigou's first sentence that employment is not reduced by greater thriftiness, the amount of investment taking place will include stocks which cannot be sold, and it is rather odd to reckon these in the amount of investment "demanded." It is quite contrary to Keynes's thought to say, as though it were a matter of direct causation, that "if the amount provided is larger, then the demand function being given, the rate of interest must be lower." The large amount "provided" will not in itself tend to reduce the rate of interest, but will lead to unsold stocks and so to a reduction of income. This causes a transfer of money from the transactions and precautionary pool (M_1) to the speculative pool (M_2) and this—provided that the liquidity preference schedule is not of infinite elasticity, as it might in certain circumstances be—causes a fall in the rate of interest. It cannot, on Keynes's scheme of thought, be said that prices will be lower, without any reference to the marginal costs of production. Keynes tends to assume that with lower activity marginal costs will be somewhat lower, but this does not play any key part in his theory, nor in these circumstances does the fact that the money rate of wages is given.

Both these passages seem to me to show merely that in the two cases chosen for notice, Professor Pigou can, by using totally different concepts and theories of causation from those of Keynes, get the same end result as Keynes. I do not see that this can be taken to be more than a remarkable coincidence. We cannot infer that in other cases one would get the same end result by using Professor Pigou's theory of functional relations as one would get by using Keynes's. And what we are primarily interested in is not the end result but the theory itself.

In this chapter Professor Pigou advances a critcism of another end result of Keynes's theory, namely that *ceteris paribus* more thriftiness will, anyhow in the short period, entail less aggregate investment. Professor Pigou holds, I judge correctly, that Keynes can reach this conclusion only by assuming that investment is an increasing function of consumption. If the marginal efficiency of capital were quite unaffected by the current level of consumption, then, since on Keynes's theory as well as on Professor Pigou's theory, greater thriftiness would normally entail a lower rate of interest (the quantity of money being taken as fixed), there would with greater thriftiness be more investment. At first blush it might seem plausible to assume that investment is indeed an increasing function of income, but Professor Pigou, referring back to an earlier argument (p. 13), claims that this is not so. Since he is comparing two situations, one with less and the other with more thriftiness, and not considering the transition from one to the other, he can leave out of account any extra investment which may be due to the increase of consumption that occurs in the transition from one to the other. It is possible that Keynes was guilty of some confusion here. His mind was no doubt concentrated on the actual processes of fluctuation, and, thinking of a change of thriftiness, he would have his attention fixed on the increase or decrease of investment associated with the increase or decrease of consumption occurring during the change. Keynes may have been too hasty in jumping from the proposition that an increase of thriftiness would (with a constant rate of interest) tend immediately to reduce investment, to the conclusion that a continuingly more thrifty economy would have less investment.

On the other hand, Professor Pigou's conclusion is not decisive. The real truth of the matter is that this problem cannot be analysed with static concepts. It has long been recognised that the *General Theory* will not be completely coherent until it has been "dynamised." During the last fifteen years attempts have been made on both sides of the Atlantic to dynamise it. The trouble is that in static conditions there is no investment at all, so that it is quite idle to ask whether there is likely to be more or less investment in a more thrifty economy than in a less thrifty one. In order to gauge what the volume of investment in either situation would be, we have to specify what the factors of increase in the society are.

Looking at the matter in a rough-and-ready way, which is all that is possible in this place, we may well hold that Keynes rather than Professor Pigou is in the right. Let us suppose, for instance, that the sole factor of increase is improving technology and that its ambit is the whole of production. If owing to excessive thriftiness the economy continued to show non-frictional

unemployment at a level of, say, 20%, the new inventions would only have scope for application over 80% of the area in which they could be applied if the economy were fullly employed. The new investment due to the improved technology would be correspondingly circumscribed. This limitation of the range for incorporating new improvements might have a greater (negative) effect on total investment than the positive effect due to more potential improvements being brought within the range of payability, and therefore rendered practicable, by the lower rate of interest. If this were so, the greater thriftiness would *pro tanto* entail less investment.

If this review is correct in concluding that Professor Pigou's account of Keynes's theories is seriously at fault, it must not be inferred that Professor Pigou has been guilty of carelessness or failure to make an honest attempt to understand the *General Theory*. Keynes in his own life time found that his fellow economists could not bring themselves to believe that it was essential to his arguments to discard certain long-used concepts and assumptions regarding functional dependence, and that the validity of his work could only be judged by examining whether his rejections were correct. To ignore what may be called his methodological revolution and argue about his conclusions with the aid of some of the rejected methodological tools did not carry one forward. Professor Pigou's new book is an admirable example of this.

None the less it is an interesting book. If the reader approaches it not as an exposition of Keynes, but as an independent contribution to economic theory, he will find much that is instructive and valuable. Professor Pigou's outstanding powers of analysis are well displayed in many places and with their aid he is able to make important additions to our knowledge in this field.

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A Reconstruction of Economics. By Kenneth E. Boulding. (New York: John Wiley. London: Chapman & Hall. 1950. Pp. xiv, 311; Figs. 85. $4.50.)

Here certainly we have a new departure, or even several new departures in economic analysis. It is perhaps too soon to tell how far they will represent the attainment of new milestones on the main path of economic thinking, and how far they are really bypaths. But even as bypaths, they represent interesting and invigorating mental exercise, and may even be suggestive of new ways by which progress can be made along the main road. Certainly no one interested in the frontiers of economic analysis and theory can afford to ignore this book.

The general theme of this book, carried through a number of otherwise largely unrelated segments of analysis, is that economic phenomena can profitably be considered primarily in terms of relationships between stocks or balance sheet items, and that flows can best be treated as changes in stocks. This is in contrast to the more traditional analysis in which flows first com-

mand attention, and stocks are merely the accumulation of past flows or the sources of future flows.

The book is in two parts, virtually independent, reflecting the chasm that still separates micro- from macroeconomics. The first part, dealing with microeconomics, centers around four main themes: Ecological equilibrium; a reorientation of preference theory through bringing in prices as new dimensions in indifference surfaces and at the same time setting up the "preferred asset ratio" as a simplifying first approximation; theories of risk; and a reexamination of the concept of consumption.

The first two chapters are devoted to a discourse on population theory and ecology in terms of the familiar "reaction curve" analysis. The result, however, is more of a formal illustration of the properties of the reaction curve analysis than it is a contribution to theory, and could well have been omitted entirely without any effect on the meaning of what follows.

Next, Professor Boulding attempts to break out of the traditional pattern of static economics in which consumers are supposed to be striving to achieve a preferred *process*, expressed in terms of maximizing the satisfaction derived per unit time from the flow of goods and services, while firms are supposed likewise to be maximizing profit per unit time. Instead, individuals and firms are supposed to be behaving in terms of attaining a preferred *situation* expressed in terms of assets and liabilities at a point in time, rather than in a flow of goods and services through time.

In the case of a business firm, assets are primarily marketable or potentially marketable. But in the case of the individual consumer, assets may also consist of states of mind, *e.g.*, the state of just having gone to the movies or states of physical health, *e.g.*, the state of just having had a good dinner. This somewhat novel point of view is elaborated in the section on consumption. Indeed there is considerable question whether, from a psychological point of view or even from an ethical or philosophical point of view it is better to consider the aims of economic activity as the achievement of a situation or the achievement of a process, and certainly this approach is worth some attention. One might perhaps say that one climbs Mt. Whitney largely for the sake of being later in a state of remembering it and being able to talk about it, and perhaps a good share of the satisfaction experienced in the act consists of the anticipation of this later state. On the other hand, it is a little more difficult to conceive of a lost week-end being undertaken for the sake of Monday's hangover and total absence of recollections. Perhaps we have here a new approach to the old idea of "pure" and "impure" satisfactions.

But however far we may go as a matter of philosophical speculation in reinterpreting human wants as wants for a state rather than wants for a process, tractability requires that the analysis deal primarily with observables, such as quantities of physical assets and their prices. In a flow theory of consumption, in which the goods and services consumed cannot thereafter be resold, it is possible to postulate for simplicity that prices of the goods and services do not affect the relative desirability of different consumption patterns. But this can hardly remain true of asset holdings, most of which will affect the "state" of the consumer (or firm) primarily through exchange,

actual or potential, rather than through direct use. Thus even though we could consider preferences among consumption patterns to be independent of prices at least as a first approximation, in the case of asset patterns, the rôle of anticipated prices, and of present prices which influence these anticipated prices, cannot as easily be ignored. A preference indicator for asset combinations, if it is to be at all serviceable, must therefore include prices as variables as well as the quantities of the assets. Even though, strictly speaking, it is price anticipations that influence preferences and not current prices, and even though one were to consider such anticipations as part of the ineluctable "tastes" of the individual, current prices of assets influence such "tastes" to a far greater extent and in a manner less likely to be eliminable as "irrational" than is the case for the analogous influence of price on the preference field for consumption patterns.

Introducing prices as variables in the usual indifference analysis of flows produces an intractably large number of degrees of freedom, and would here also, but Boulding introduces a further drastically simplifying assumption in the form of his "preferred asset-ratios." In effect, it is assumed that asset preferences are such that for any given market situation an individual will trade in such a way as to make the market value of the amount of each type of asset in the resulting portfolio equal to some preferred proportion of the total market value of his assets. For competitive markets, this implies demand, supply, and offer curves that are all equilateral hyperbolas, with asymptotes parallel to but not necessarily coinciding with the axes.

This assumption that, as a first approximation, we can assume adherence to the preferred asset-ratios has some relevance to institutional circumstances, if we note that banks and financial analysts often look at the balance sheet of a firm with an eye to seeing whether "accounts payable," "inventories," "fixed assets" and other similar categories of assets and liabilities bear a relationship that rough rules of thumb or some consensus of experience indicates to be proper for the industry in question. But these rules of thumb are applicable, if at all, only to relatively large categories of assets as aggregates. For more specific and detailed asset categories, it appears likely that constant preferred asset-ratios will hardly begin to give any reasonable approximation to reality. Thus, if the preferred asset-ratios are to be used at all they must be assumed to vary with relative prices, and we are back with so many degrees of freedom that anything can happen and the theory lacks positive significance. Thus, while the preferred asset-ratio concept is effectively used later by Boulding in the construction of his macroeconomic systems, serious difficulties confront its extensive use in microeconomics.

Indeed, as soon as price is introduced as a parameter of choice, either explicitly as a separate parameter or implicitly through the preferred asset ratio, nearly all connection with welfare economics is broken, and there appears to be no likelihood of developing from the new approach very much in the way of either normative or prescriptive economics. It seems almost impossible to justify any use of the preferences of individuals for marketable assets as a criterion for judging an economic system, in any manner comparable to the use of consumption-pattern indifference maps for this purpose.

To those who view welfare economics with distrust, this may be an advantage of the new method; to this reviewer, however, it is a major and almost fatal objection to it if it is proposed to use it as a basic rather than as merely a supplemental tool of analysis.

Nevertheless, Boulding does use the asset-indifference apparatus to produce some moderately significant new results: for example to distinguish the effect of a tax on production from that of a tax on sales, which may differ to the extent that inventory is accumulated. To be sure, this difference is likely to be merely a transitory phenomenon, since in the long run sales and production must be approximately equal if inventories are to be finite. These transitory phenomena, however, are precisely what may greatly influence the course of the macroeconomic system, and must not be slighted on that account. It is thus very useful to have a new tool adapted to their analysis.

Boulding next applies his analysis to the problem of risk, postulating (in a manner similar to that of Melvin Reder in *Studies in the Theory of Welfare Economics*) a preference field in the plane of which the expected value of assets and some measure of dispersion are the coordinates. Unfortunately, the analysis seems almost entirely a pure formalism without much in the way of concrete results as yet. In the ordinary indifference map, the coordinates at least are reasonably objective and observable quantities, in principle, even if not always in practice, while utility or preference is the only subjective element. With indifference maps of asset values, however, there are in typical situations no objective measures of expectation and range of values for a risky asset, and we are faced with a hypothetical relationship between three subjective parameters. This analysis does, however, have the advantage of couching the analysis explicitly in terms of asset preferences; too often in the analysis of risk, the time dimension is blurred and no analysis or justification is made of the transition from postulating a preference field in terms of flows to a preference field for stocks.

Boulding starts the macroeconomics section with a discourse on the dangers of forgetting that macroeconomic aggregates often conceal important elements of structure. There follows an interesting but highly artificial analysis of the dynamics of payment structures. Both of these discussions seem better as pedagogical material than as a contribution to knowledge; indeed in the payments analysis, it almost seems that the cart is drawing the horse: the analysis is in terms of "partial velocities" of individual firms and households, representing the ratio of a given type of outlay by a given unit in an accounting period to the unit's stock of money at the beginning of the accounting period. As a first approximation these partial velocities are assumed to be relatively stable, changes in money stocks producing a generally corresponding change in each specific type of outlay. As actual reactions to changes in money stocks are likely to be highly concentrated in some items, and even to involve action intended to change receipts instead of changing only outlays, this analysis will have to be made much more realistic if it is to serve as anything more than a teething ring, which limited end it may serve very well.

The most interesting, and suggestive, but perhaps precarious section is the last in which Boulding carries the analysis of macroeconomic identities to

new and perhaps extravagant lengths. The new superstructure, though it leads to very interesting and even startling conclusions, depends, in many crucial spots, on precisely the kind of structural constancy, stability of relationship, and absence of unanalyzed side effects that Boulding has been at pains to warn us of in the preceding section. Macroeconomics provides no automatic exorcism for the perennial bugbear of *ceteris paribus*.

One of the simplest examples of this is the "paradoxical" proposition that the more of its profits business distributes to households, the greater will be business profits, by an approximately like amount. This proposition is derived from an identity that sets up profits (V) as the sum of distributions (D) and increase in business net worth (dG_b), the latter being in turn made up of the increase in cash holdings of business (dM_b), the increase in the value of goods held by business (dQ_b), the increase in credit extended by business to households (dK_h), less the increase in loans from households to business (dK_h'): $V = D + dG_b = D + dM_b + dQ_b + dK_h - dK_h'$. By assuming that by some inherent stability all the items on the right side except D are determined or tend to restore themselves to some normal level, an increase in D is shown to bring about a like increase in V.

But alas for this nice, precise "widow's cruse" hypothesis, these other variables refuse to stay nicely put; indeed from the very beginning they are constrained to change. For a decision to increase distributions cannot be made in isolation: individual firms too are constrained by microeconomic identities. Individual firms must decide, if they are to increase distributions, whether this is to be by drawing down on balances, forgoing plant expansion, curtailing consumer credit, or borrowing. Which method is chosen may make all the difference in the result, and a proposed shift in behaviour is not completely specified until both of the balancing components have been indicated. When care is taken thus to specify both components, the member of the pair that is significant for the effect postulated may well prove not to be the one cited but rather the one left in the background. Thus a decision to increase dividends by cutting down cash balances may effect the equal increase in profits as predicted, provided, always, that households resist effectively an increase in their cash holdings and the monetary system fails to contract, thus frustrating the original intent of business as to their cash balances. But dividends paid in lieu of a construction program will hardly have the same result, and it looks as though it would be more satisfactory to attribute the increase in profits to the attempted reduction in money holdings than to the method adopted in a particular instance.

Nevertheless, some interesting new forms of analysis are developed with the aid of a concept termed the "Transfer Factor" (T) defined as increase in business cash (dM_b) plus distributions of profits (D) plus net increase in loans to households ($dK_h - dK_h'$). Roughly, it consists of net withdrawals from business adjusted for monetary shifts. Or in more nearly Keynesian terms, it can be considered as the excess of consumption out of profits over savings out of wages. With this concept as an element, Boulding builds models in which T is the strategic variable determining not only the total volume of output, but also the division of the product between wages and

profits (in a simplified two-factor world of labor and capital). It remains to be seen whether the transfer factor is a sufficiently useful entity, either by reason of its special stability or its special manipulability to justify its being given a prominent place in the kit of economic tools in view of the difficulties that many will experience in getting it clearly in mind as an entity and grasping the effects of various influences on its behaviour.

On the whole, this book is curiously tantalizing. New approaches and new techniques abound in it, that no brief review can do justice to. But most of them are too inadequately developed for the conclusions to be relied upon without further examination and detailed pursuit of all the implications and ramifications. One almost gets the feeling of looking at a series of designs of elegant bridges for which no foundations have yet been laid, nor details elaborated. Moreover, although theories are offered which challenge and displace the classical marginal productivity theories of distribution and the more standard analyses of the behaviour of consumers and firms, very little is offered either by way of linking up with, reconciliation with, or refutation of these older theories. New ideas thus so sketchily developed badly need the orientation, if not the support, derived from a clear relationship with the old. This book is thus a strong challenge to pick up where it leaves off and develop a sound and integrated structure along one or more of the lines indicated and to relate these structures to the existing body of economic theory. To those looking for ideas, it should prove invaluable. Those looking for conclusions would perhaps be well advised to proceed with caution, and classify it as "unfinished business" on the frontiers of knowledge.

WILLIAM VICKREY

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La Sintesi Economica e la Teoria del Reddito. By GUSTAVO DEL VECCHIO. (Padua: Cedam. 1950. Pp. xxii, 436. L. 2000.)

The volume under review entitled "Economic Synthesis and Theory of Income" concludes a coherent cycle of Del Vecchio's scientific production, being the last volume of a lecture series on political economy preceded by three other volumes: "Lectures in Pure Economics" (1937, 4th ed.), "Applied Economics" consisting of "Dynamics" (1937, 2nd ed.), and "Economic Policies" (1937, 2nd ed.). Space is lacking here for a complete enumeration of G.D.V.'s other publications. However, we have to mention his standard work "Inquiry into the General Theory of Money" (Milan, 1933). The volume under review, although a synthesis of previous works, has neither the character of a fragment nor that of a complement, but forms an independent whole.

The traditional rigidity of a textbook is lacking in the exposition as well as in the sequence of thought. It contains precisely that not usually contained in a textbook. It is a kind of illuminating supplement to what is offered in the classroom—broadly ramifying into history of economic doctrines, sociology, philosophy—and is deeply anchored in methodology. One might best characterize it as a comparative methodology or a general epistemology of economics. It gives a subtle analysis of the living conditions of the theory,

of the specific atmosphere creative of its efficiency, and thus could be called a "Biology" of theory as a special branch of a general philosophy of economics. The author demonstrates how some new theoretical element penetrates the traditional body of theories and gradually decomposes the whole system; thus, a theory imperceptibly loses its explanatory value and emphasis is placed upon a new system of thought. The general pattern of this law of transition and the gradual substitution of one system of thought by a new one is exemplified by the antithesis of classical and Keynesian economics.

The first and second parts of the book are devoted to the historical development of the income aspect. An instructive by-product of this filiation of thought is to show that the development of economic theories is not only connected with authors of the Anglo-American realm of thought and their French or German derivatives, but with important and original contributions made by the Italians: Ferrara, Pareto and Pantaleoni. It goes without saying that in this historical sketch of the origin of the income theory, emphasis is placed upon Sismondi. In this filiation of doctrines one might begrudge the space devoted to such apparently devitalized discussions as that about material and immaterial goods, were it not for the delicately wrought arguments and counter-arguments which reflect in their subtle casuistry a metaphysical dualism revealing the predominance of immaterial factors and intangible equivalents such as "rights" or the "state" in the structure of typical German theories.

In Part 3 the author deals with the essential of economic synthesis. The whole elaboration of economic theory is shown as being functional to the concept of income. Keynes's "Janus"-face is illustrated by the following reasoning: The fact that Keynes considers the quantity of money as an independent variable assimilates him to the mercantilists; the consideration of nominal wage rates as independent variables, on the other hand, approximates him to the classics. Another classical element is Keynes's conception of the individual enterpriser as the ultimate decision-making entity. All the well-known Keynesian propensities and the rate of interest are determinants of the enterpriser psychology and of his decision to increase or decrease employment. The dynamic character of Keynesian thinking is contrasted with the static nature of the classical system—Ricardo's theory of rent being based upon the assumption of an enterpriser without profit. G.D.V. is, with Keynes, opposed to the classical bifurcation which separates the "monetary" from the "real" aspect of economic phenomena.

G.D.V.'s criticism of the classical system shows in a striking way how any injury to the vital nerve centers of a theory causes the gradual breakdown of the system. According to the classics, monopolies are considered as the result of deviations from the normal cost of production. The substitution of utility for cost deprived the theory of monopoly of its logical support, thus undermining the classical concept of monopoly (Part 4). International problems in their relation to income are discussed in Part 5.

Altogether, it is a synthesis of fascinating insights. One wonders, however, why the excellent chapter on Keynes placed in the historical part, does not include, in an introductory way, all the illuminating statements later made

by the author. Constructive criticism of Keynes is scattered all over the book; incorporated, "in different degrees of abstraction," into one chapter it would represent a global interpretation of Keynes, the logical consistency and methodological value of which could not be surpassed.

LOUISE SOMMER

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Applied Economic Analysis. By F. M. BODDY, editor, and CHILDS, SMITH, BROWNLEE, COONS, and SALERA. (New York: Pitman. 1948. Pp. xvi, 573. $4.75.)

Applied Economic Analysis is a book written by six authors, each, to some extent at least, a specialist in his respective field. The reviewer has some difficulty in deciding where and at what level this work should be inserted into the economics curriculum. In the preface, it is observed that most universities give a two-semester course in Economic Principles and Problems and that this is designed for the second semester, or problems section of the course. However, it is doubtful if it could be successfully used in that way. Since each section is treated by a specialist, it is quite obvious that they have been giving major attention to complete courses in their own fields and are experiencing difficulty in condensing what they have to say and getting it down to the sophomore level, where students have had only one semester in principles or economic theory.

It is quite probable that this text would fit in better if inserted in the junior or senior year following a course in Intermediate Economic Theory. This observation is made because the work is definitely not pitched at the elementary level. It is a scholarly piece of work. Each man is well qualified to handle in an able manner the field of his specialization and certainly each one is more interested in an adequate presentation of his material than in the simplification necessary for elementary students.

Section I on *The Controls of an Economic System,* by Francis M. Boddy, is quite theoretical and some of the diagrams are decidedly complicated. It would appear that the author is assuming that students have more mathematical background and a greater capacity for analyzing geometric figures than the reviewer has found to be true. Furthermore, there is a tendency to over-stress *tools* of analysis rather than clarification of analysis. The viewpoint is well stated in the preface, where it says, "The authors believe that the major value of an elementary course in economics should lie not in furnishing the student with answers to economic problems, but rather in giving him a set of tools or techniques and showing him how to select those most applicable to the problem at hand." The word "tools" is used six times in the first page of the preface and there are times while reading Part I that one feels that there is more interest in the nature of the tool itself than in its application. When one attempts, as the author does, to analyze the intricacies of perfect competition and imperfect competition, it would appear that some of the complicated diagrams should be supplemented by more extended explanation.

Section II on the *Economics of Labor* is by Frank E. Childs, of the Univer-

sity of Minnesota. The major topics treated are labor markets, labor organization, and collective bargaining. On the whole, this section is very well done.

Section III on the *Economics of Marketing* is by Wendell R. Smith, of the University of Iowa. The treatment is fairly elementary and covers quite adequately both the marketing institutions and the marketing functions.

Section IV is on *Money, Credit, and Monetary Policy* by O. H. Brownlee, of the University of Chicago. Here, the author brings in a liberal amount of Keynesian economics, while dealing with such subjects as savings and investment, and the equilibrium levels of investment and employment.

Section V on *Public Finance and Fiscal Policy,* also by O. H. Brownlee, is almost wholly Keynesian in that one learns little about the fundamental canons of taxation or what constitutes a good tax or tax system but rather a devotion to fiscal policy as a means of providing full employment.

Section VI on *Agricultural Problems* is by Alvin E. Coons, of Ohio State University. This is a rather extended section, covering almost exactly one hundred pages. Great attention is given to parity for agriculture, farm income as related to other incomes, conservation, the tariff in its relation to agriculture, and the organization of the farm bloc. The author recognizes some of the sinister influences of pressure groups, but closes the chapter by saying "farm groups are no different, neither better nor worse (except in so far as the advantages they win become more far reaching), in their attempts to influence the total economy. No group has a monopoly on the economic virtues nor on the economic vices, whether it is made up of farmers, labor, businessmen, industrialists, or professional people."

The last section is on *International Trade* by Virgil Salera, formerly of Iowa State College. Mr. Salera demonstrates a very intimate knowledge both of factual background in international trade and also of the mechanism of international trade and the need for freeing world trade from a host of uneconomic restrictions. There is brief but clear treatment of the International Bank for Reconstruction and Development.

By way of a concluding statement, we may say that each author knows his field and has presented it clearly and concisely within the limits required by one book where each man can have only a segment rather than the opportunity to write a complete text. Each section carries a brief but well-selected bibliography for further study. There is an excellent index and many will find it a splendid book for ready reference, even if they cannot find a place for it in their own curriculum as a textbook.

H. L. McCracken

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Economics of Business Enterprise: A Study of the Firm in the Aggregate Economy. By George J. Cady. (New York: Ronald Press. 1950. Pp. x, 452. $4.50.)

This book is a text in economic theory intended for college courses of intermediate grade. It is a welcome addition to a field already covered by such excellent texts as Bain, Boulding, Due, Enke, Stigler, and Weintraub.

Part I lays the introductory groundwork in four chapters outlining the plan of the book, discussing elementary notions of marginal analysis basic to an understanding of all firm operations, and using these notions for a general interpretation of firm costs as well as consumer demand. The typical U-shaped average cost curve of the individual firm is explained as a set of enveloping curves illustrating the large number of possible combinations of temporarily constant and variable productive agents. Demand for firm output is represented by five general types of sales curves illustrating the market situations of pure competition, simple monopoly, oligopoly, competitive monopoly and discriminatory pricing.

Part II provides a more detailed analysis of the firm as seller of one product. In describing different market situations, the author states as the "predominant pattern . . . one of artificially induced scarcities and heightened particular prices" (p. 80). While there can be little quarrel with the desirability of pointing up the widespread manifestation of restrictionism found in our economy, such statements would gain in perspective if they would include an appraisal of social alternatives in combining short-run stability for "vested interests" with the ideals of long-run competitive resource allocation. There is no reference to J. M. Clark's searching analysis of "workable competition."

Part III drops the assumptions of monoproduct operations, the motive of residual income maximization, and accurate predictability of the market. Multiproduct operations are analyzed under conditions of joint production and production of two or more goods in variable proportions, using revenue and cost indifference curves. Under the general heading of "entrepreneurial variants in control objectives" separation of ownership and control is discussed as it may affect entrepreneurial decisions. In this context, the author classifies various types of expectations and briefly examines the effect of uncertainty on entrepreneurial pricing and market organization: "Price agreement . . . is one of the most effective devices for interfirm handling of certain types of risk" (p. 183).

Part IV deals with the entrepreneur as buyer. The problems of wages, cost of materials, rent, interest, and profit are analyzed under a variety of market conditions. The chapter on labor uses some materials first developed by Dunlop in his *Wage Determination under Trade Unions*. Profit, as a net entrepreneurial residuum, "exerts an extremely important influence on the dynamics of firm and industry" (p. 254), though the author warns that a distinction must be drawn "between the profits of successful competitive innovation and the profits of firm and industrial collusive stabilization" (p. 359).

Part V is devoted to "aggregative considerations." An attempt is made here to explain economic disequilibrium in the aggregate economy on the basis of the foregoing analysis of the firm. "In general, monopoly results in fewer consumable goods and decreased per unit income for variable factors. It also places a strain on those flexible features in a price economy which must be counted on to ensure full employment . . . the business cycle bears a definite relation to the various inflexibilities associated with monopoly" (p. 363). In

a digression on economic policy, the author discusses the rôle of "enlightened and wise individuals," organized labor, organized consumers, organized business, and government. A concluding chapter on "What to Look for in an Economy of Firms" lists eighty principles which, it is claimed, "have been given a factual orientation" (p. 421). The nature of these principles is illustrated by the following quotes: Principle 3: "The most significant monetary flows take place through markets" (p. 422); Principle 50: "The prices of materials depend on the pattern of power and the precise nature of the dominant interest as exhibited in the market" (p. 427); Principle 75: "Crisis and depression may be interpreted fairly adequately in terms of innovation, new investment, liquidity preference, the interest rate, and the circular overflow of money" (p. 429).

To quote the author again, "there is a certain taint of futility about the type of economic analysis which starts and ends on the level of deductive abstraction" (p. 420). The student reading this book cannot but be struck with this futility. In spite of frequent assertions that "theory . . . shall be capable of application to practical affairs" (p. vi), it must be singularly difficult for the student to find a convincing answer to his question, "What use is price theory?" While the traditional framework of value theory is used to show how monopoly results in fewer consumable goods and decreased per unit income, the student is reassured with the *non sequitur* statement that "organized labor and organized business can make significant contributions to the elimination of restrictionism" (p. 429). There is no indication how price analysis could contribute to the strategy of direct control in economic mobilization, a question asked by thoughtful students at this time. Though it is emphasized that "quantitative considerations underlie all firm operations" (p. 3), no reference is made to the possibility of developing statistical cost and demand functions. And while the book is called "A Study of the Firm in the Aggregate Economy," no mention is made of the various explicit models which have been constructed to facilitate our understanding of how the individual firm and industry relate to the net and gross aggregates of the nation. The student will not find a discussion of the business sector in the nation's economic budget. He will not find the empirical application of equilibrium analysis attempted in current input-output studies. Neither will he learn anything about methods and techniques of statistical inference to measure relationships describing economic behavior, techniques which determine the logical basis of quantitative economic study.

These critical comments should not detract from the genuine merits of the book which has drawn material from a wide number of sources. The book is profusely illustrated with geometric diagrams which add to the presentation. There is also a very helpful bibliography divided into three parts: economic theory, case evidence, and court decisions. The criticism primarily reflects general misgivings about the present state of micro-economics where we face so serious problems of relating the formal analysis to realistic studies and where recent refinements have widened rather than narrowed the gap that separates theory and research. If modern theory of the business firm is to become more useful in solving problems of economic policy, it must give up

the fruitless search for a photographic "reality" of assumptions and rather concentrate on formulating hypotheses of strategic relevance for policy making in the world we live in. These hypotheses can be tested only by comparing their implications and predictions with statistical observations. The latter has been done somewhat more successfully in the field of macroeconomics, a fact that may explain the greater appeal of the income approach.

As Mr. Stigler says in the preface to his *Theory of Price:* "In short, economics is in an unsatisfactory state—it is hard to write a textbook!"

WERNER HOCHWALD

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Elementary Economics. By J. A. NORDIN and VIRGIL SALERA. (New York: Prentice-Hall. 1950. Pp. xvi, 844. $4.50.)

Professors Nordin and Salera have written a text which touches on nearly all subjects in current economics while treating each from the point of view of contemporary economic issues and economic policy. In aiming at current issues they have gone so far as to assume "that a problem is important for economists only if it is important to the voters or their representatives" (p. viii). At the same time the authors "have not knowingly made any value judgements" (p. viii), conceiving the economist's job as that of making "objective" analyses, on the basis of which the voters can choose policies. A minor criticism might be that the authors' judgements of what the voters want seem frequently confused with what pressure groups have obtained, and frequently sound like what academic economists who are politically somewhere in the middle of the road might want.

The text is truly a survey of economics, if by "economics" we mean that which is taught in college economics courses. After an introductory discussion of the relation of economic analysis to political democracy, the authors devote two chapters to description of the American economy. There follow brief treatments of national income, money and price theory, and a description of consumption and distribution patterns. Parts I and II are thus something of a survey of surveys. Part III, entitled the Behavior of Economic Units, describes in more detail banks, labor unions, family units, legal forms of the firm and deals in several chapters with price and output theory of the individual firm. These chapters, in their attempt to make firm theory convincing to elementary students, are among the best I have seen anywhere. The relations between fixed and variable factors, marginal productivity and marginal costs, for instance, follow from the information on the results of fertilizer use which Mr. Romain, a Maine potato farmer, has received from his experiment station. Part IV is on distribution analysis, and after a first chapter on labor law, treats of distribution under the conventional headings of wages, rent, interest and profits. Part V is entitled Business Fluctuations and Stabilization Policies, but the content is broader than the title suggests. The rôle of government, public finance, social security and agricultural problems all get separate chapters. Then there is a more detailed discussion of the determination of national income with a discussion of policies for stabilization. Part

VI on government regulation of business has chapters on agriculture, antitrust action, public utilities, transportation and wartime policies. Part VII deals with international trade and finance, and includes chapters on exchange control and international institutions, while a somewhat sketchy Part VIII covers communism, fascism, socialism and economic planning.

By the reviewer's count the authors treat no less than eleven subjects which in many American colleges are accorded separate courses at the undergraduate level. At the same time, they develop all these in terms of what the student would need to know to evaluate political programs in terms of the student's own value judgements. This is a large order, yet it is not far out of line with recent discussions on the goals of undergraduate teaching. When these goals are attempted in a single text, the problem becomes even more difficult. Professors Nordin and Salera have, in the reviewer's opinion, done a competent job. The style, while not sparkling, is superior to most elementary texts.

Certain costs are involved in such an attempt. The treatment, as might be expected, is scarcely rigorous. In the analysis of national income, equilibrium is said to exist when "business firms of all kinds continue to receive, period after period, the same total receipts as they are paying out net to the owners of resources" (p. 497) while the analytically correct statement in terms of planned and realized investment is only hinted at in a later chapter (p. 506). The able student will be confused by the identification of national income and product at one place (pp. 59-62), while at another he is told that deflation exists "when the flow of money incomes is smaller than the flow of goods and services available to consumers at existing prices" (p. 118). The distinction between value judgements and analysis becomes blurred at times despite the authors' good intentions; or at least if they are not making value judgements, neither do they show from what value judgements some of their policies proceed.

These examples, which could be multiplied, are not intended so much as criticism of the authors' execution, as to point out the costs of their comprehensive goals. It is possible that students who thrive on logical rigor—an aptitude of great usefulness in large portions of current economics—will be repelled by the loose formulations involved in such a program. The difficulty is inherent in the "survey" type of elementary economics course. Economics contains large portions of logical analysis, and there is clearly no way of "surveying" a logical argument. If any step is left out, the conclusion simply doesn't follow. Probably most students leave an elementary economics course not understanding, for example, how saving and investment determine national income so much as believing such because of sufficient reiteration and exhortation.

Probably many teachers would agree with Professors Nordin and Salera that economics can be "sold" to students on the grounds that it provides them with indispensable means of formulating economic policies based on their own value judgements. Yet the unfavorable reaction which many students have to economics courses is, doubtless, in part due to buyer disappointment at non-delivery. Any intelligent student is at least vaguely aware

that for practically any economic policy some economist sporting a Ph.D. can be found who will be against it, while another is available who will be for it. And he is doubtful if such a vast collection of opinions is purely the result of conflicting value judgements. The reviewer believes that early in the elementary economics course we should emphasize the slightly discordant note of the (bare) majority report of one of the Association's subcommittees "that much of the dissatisfaction with the teaching of economics arises from the fact that there is so little economics to teach."[1] Having made this clear we might then appeal to the student's intellectual curiosity by rigorous analysis, on the one hand, and careful attention to the known empirical content of items such as the marginal revenue curve or the propensity to consume, on the other. Such a program may have less boxoffice appeal, but it might produce fewer dissatisfied students. After all, if bees are studied for other reasons than their productivity in honey, and if students of nuclear physics are not only moved by an urge to install more horsepower in American industry, there is no reason why human behavior should not arouse Veblen's "idle curiosity."

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[1] This *Review*, Vol. XL, No. 5, Part 2, Supplement (December, 1950), p. 102.

Readings in Economic Analysis. Vol. I, *General Theory;* Vol. II, *Prices and Production*. Edited by RICHARD V. CLEMENCE. (Cambridge: Addison-Wesley Press. Pp. xi, 283; xi, 259. $3.00, each volume.)

This set of readings is a praiseworthy attempt to provide undergraduates—presumably upperclassmen—with something more than the aridities of most of the texts in intermediate theory. With one exception[1] the two volumes consist exclusively of articles reproduced from the scholarly journals. The articles are almost entirely contemporary. The earliest is Taussig on "Capital, Interest and Diminishing Returns" (1908). There are three articles dating from the 'twenties,[2] but all the rest originally appeared in the 'thirties and 'forties.

With the exception of a brief introduction to each volume, there is no editorial comment. Practically all the articles are reproduced unchanged, and they are reproduced photographically, so that not only is their content undistorted, but their format is reminiscent of the matrix from which they were abstracted.

The first volume is entitled *General Theory,* and although it leads inevitably into the great Keynesian debate, the term is not restricted to its Keynesian interpretation. The book opens with two papers on methodology: Harrod on scope and method and Leontief on "implicit theorizing." Buchanan

[1] Schumpeter, "The Nature and Necessity of a Price System," from *Economic Reconstruction* (New York, Columbia University Press, 1934).

[2] A. A. Young, *Increasing Returns and Economic Progress* (1928), Taussig, *Is Market Price Determinate?* (1921), and Sraffa, *The Laws of Returns under Competitive Conditions* (1926).

on the cobweb theorem and Bergson on welfare economics lead, somewhat indirectly, to two papers on the laws of return by Taussig and Young, respectively. Schumpeter on the instability of capitalism precedes, although hardly introduces, Robbins and Samuelson on statics, while Keynes on declining population appropriately leads into Tarshis' exposition of the *General Theory,* appraisals by Williams and Schumpeter and discussions of effective demand and employment by Kaldor, Bennion and Klein.

Volume II is entitled *Prices and Production,* but too much weight should not be assigned the title of either volume, at least as factors determining into which one any given article is to be placed. It opens with Schumpeter on the price system, immediately followed by Viner's famous article on "Cost Curves and Supply Curves" to which its author has prepared an interesting supplement which appears here for the first time in print.[3]

Taussig on the determinateness of market prices, and Sraffa and Chamberlin on the laws of return precede four articles from the Lester-Machlup controversy over marginalism. Cost functions are discussed by Hansen, Eiteman and Apel, Efroymson's article on kinked demand curves is reproduced, Buchanan discusses advertising expenditures, and the volume concludes with Reder's reconsideration of marginal productivity.

If the extreme sketchiness of the foregoing summary has not obscured identification, the reader will recognize the high proportion of well-known articles among those reproduced. Few younger economists, and very few if any graduate students, possess files of the standard journals for the past twenty years, so that convenience of possession, to say nothing of freedom of annotation, are sufficient warrant for this venture. But since the set is designed primarily for undergraduate instruction, this particular usefulness can be described as one of those by-products which, to some consumers, justify the manufacture of the main product.

That main product, in this case, has substantial merits and only one, completely inescapable, defect. Its outstanding merit is the possibility it affords of confronting students at first hand with what economists say and do. A secondary merit is mentioned by the editor: "It is a source of some satisfaction to students to discover that they can understand the sort of articles that professional economists read" (Vol. II, p. ix). Perhaps the comment should be made that only one of the reproduced articles[4] depends upon that mathematical symbolism so terrifying to so many. The book does, however, contain plenty of good hard reading which will require very close attention indeed, but it is the meat rather than the mien which is formidable, and that probably is pedagogically wise. A third, and substantial, merit is the exposure of students to controversy. It is one thing for a textbook to

[3] The purport of this supplement is to place the analysis into the context of the general rather than the Marshallian partial equilibrium, and it leads to the conclusion that there is "a universal long-run 'law' of increasing money costs as output changes in response to shifts in wants in an economy of constant national money income" (Vol. II, p. 34), *after* the point is reached where technological economies of scale in the plant have been exhausted.

[4] A. Bergson (A. Burk), *A Reformulation of Certain Aspects of Welfare Economics* (1938).

summarize, or even allude to, controversy—and not all do; it is quite another, and immeasurably more valuable, to confront students directly with the issues at which professional economists are tugging.

The book's inescapable defect is inherent in the fact of selection. No two economists are ever likely to agree (a) that the selections made are necessarily the most useful or appropriate, or (b) that the themes selected—or omitted—serve the most desirable purposes. This reviewer, for example, would like to see included such themes as monopolistic competition and income distribution (both of which, at any rate since Marshall, are subsumed within the price system), and he is not convinced that the treatment of price is really meaningful apart from consideration of the theory of money. That is a defect to the reviewer; but as he can hardly expect others to draw the line between things in heaven and earth and the philosophy of Horatio exactly where he does, there is little more that can be appropriately said.

GEORGE P. ADAMS, JR.

Cornell University

Basic Economics: A Book of Readings. Edited by ARTHUR D. GAYER, C. LOWELL HARRISS and MILTON H. SPENCER. (New York: Prentice-Hall. 1951. Pp. xv, 624. $2.95.)

This compact little volume consists of 116 excerpts from articles, laws, encyclicals and other significant sources of economic material. It is aimed at the beginning student of economics and is designed to accompany and supplement whatever basic textbook may be in use. To facilitate this the editors and publishers are preparing cross-references to some of the major elementary texts in current use.

The book is divided into fourteen sections, by topics, and the allocation of space to each topic is reported as being in rough conformity with that of some of the chief textbooks. The list of topics and the space given each Part follows: I, Nature and Method of Economics, 16 pages; II, Industry and Agriculture, 40 pages; III, Consumer Problems, 19 pages; IV, Price and Cost Analysis, 86 pages; V, Competition and Monopoly, 65 pages; VI, Income Distribution, 44 pages; VII, Labor Problems, 48 pages; VIII, Population and Social Welfare, 44 pages; IX, Monetary Economics and Finance, 49 pages; X, National Income and Economic Growth, 27 pages; XI, Business Cycles and Employment, 42 pages; XII, Public Finance and Fiscal Policy, 47 pages; XIII, International Economics, 63 pages; XIV, Economic Idealogies and Planning, 52 pages.

An extraordinary variety of sources has been searched for material to whet the appetites, deepen the understanding and possibly even to open the mouths of freshmen and sophomores. Among the great names represented are Aristotle, Smith, Ricardo, Malthus, Marshall and Veblen. Keynes, Boulding, Duesenberry, Stigler, Mitchell and Viner appear among the contributors who are contemporary or near-contemporary. From outside the profession the editors have drawn, among others, upon Jonathan Swift (on

taxation in Laputa), Pope Leo XIII (*Rerum Novarum*), and President Truman (on Point Four). Some of the institutions, committees and organizations represented are Consumers' Research; the American Medical Association; Merrill Lynch, Pierce, Fenner & Beane; and the plaintive commentary on loaded words in the 1949 *Minority Report of the Joint Committee on the Economic Report of the President*. The hand of the legal draftsman is shown in the form of excerpts from the British Combinations Act of 1799, the United States Anti-Trust Laws and the Taft-Hartley Act. Among the more interesting or unusual selections are Bastiat's famous *Petition of the Candlemakers*, John McDonald on *Economics and the Theory of Games* and R. A. Radford's analysis (that should be better known in this country) of the cigarette standard in a German prisoner-of-war camp, which should clinch the point that there are such things as monetary principles.

All the material is clear, and in its context all should be found interesting. Controversial material appears where it belongs, and without any effort either to play it up or to minimize it. Most items have been heavily cut, probably for the purpose of bringing out single points as well as to conserve space, but the result in many cases is to foster an illusion of nonexistent simplicity. Editorial comment is limited to an identifying sentence or two at the beginning of each selection.

On balance, the items chosen have been well-handled, and the book should be fun to teach. It must, also, have been fun to compile.

GEORGE P. ADAMS, JR.

Cornell University

Grondslagen en Techniek van de Marktanalyse. (Fundamentals and Techniques of Market Analysis) By P. J. VERDOORN (Leiden: H. E. Stenfert Kroese's Uitgevers-Maatschappij N.V. 1950. Pp. xi, 667.)

Economists are sometimes reluctant to undertake empirical research because of its inherent difficulties and often unrewarding results. Dr. Verdoorn's book is an antidote for this reluctance. In a volume useful to both the economist and the market analyst, he offers instruction in the fundamentals and techniques of studying markets.

After a brief introduction in which he includes an evaluation of the rôle of market analysis in business, government, and the development of economics, Dr. Verdoorn turns his attention to the definition of a market. Here he demonstrates the importance of careful limitation of the market to be investigated and suggests statistical methods that may be employed in this task. Next, he discusses factors to be considered in determining the character of the market and its changes. He follows this with a chapter on the techniques available for making studies of a particular aspects of markets. Dr. Verdoorn then examines some of the problems connected with certain types of market analysis such as the allotment of import quotas and the study of export markets, and presents a number of case studies to illustrate the techniques he has described.

From the viewpoint of the economist, this book is interesting. Here is

market research described in familiar terms. The relevancy of economics stands out clearly. Dr. Verdoorn's book should do much to encourage economists to participate in the gathering and analysis of the factual data so necessary to progress in economic theory.

WYTZE GORTER

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Economic History; National Economics

The Growth of English Society—A Short Economic History. By E. LIPSON. (New York: Henry Holt. 1950. Pp. ix, 467. $3.75.)

This volume is an expanded and revised version of the author's earlier *A Planned Economy or Free Enterprise.* Its title may have less sales appeal, but it has gained much in the revision. Mr. Lipson has added breadth and depth as well as length to his examination of the rôle of state planning versus individualistic enterprise in English history. His position is more closely reasoned, his treatment tighter-knit, and although some of the freshness of the first effort is lacking in the second, its painstaking scholarship makes it a much more satisfying piece of work. Its publication will call for extensive reworking of many of the texts in English economic history now in use.

The whole course of English economic history comes under review in this straightforward narrative. In the thousand years following the fifth century, the freedom of the tribesman gave way to servitude, and it was only with the disappearance of villeinage that the original freedom of the English village was restored. The author traces the growth of individualism, first centered in the commercial town, and examines in detail its implication for all aspects of medieval economic organization. This growth is accounted for by the expansion of the market at whose center stands the ubiquitous entrepreneur "the architect of the new England," who was to win for England its preëminence in the nineteenth century. In the mercantilist period he could make headway only within the framework of corporate society and in opposition to the state whose authority, backed by tradition, was directed to control of new and disruptive forces. Mercantilism, in this sense, is seen as England's first planned economy, one planned in the interests of self-sufficiency, balance and order. The issue of Crown versus entrepreneur, stability versus change, was fought out in the sixteenth and seventeenth centuries; individualism won, and much of the book is taken up with the explanation of its victory. For planning, the game was up by 1660, and from the Civil War to the beginning of the nineteenth century, freedom took over in English economic life, its foundations laid in England's first planning period. And it was in this period of unshackled entrepreneurship that the bases for England's industrial supremacy were laid. The mistakes of exaggerated individualism in turn led directly to the revival of mercantilist policies, to state control in the economic order in the interests of the old ideals of social harmony and justice. The nineteenth century is viewed as,

". . . an age in which the fabric of economic life was being reconstructed in preparation for an era that was to dawn in the twentieth century—the almost limitless extension of state functions into every sphere of the national economy" (p. 280).

This outline fails to do justice to the book's wealth of detail and its success in putting right many mistaken notions about the course of economic change in England. No feature of the economic life of the English people is overlooked, and the whole treatment follows a consistent pattern in which every cause and consequence is shown in its relation to the main theme of stability versus progress. The main elements in this pattern are underlined throughout and their significance reiterated almost to the point of tedium. History is an essentially continuous process, each system contains within itself the seeds of its decay, each stage in change paves the way for the next. Moreover, history's course may be likened to that of pendulum swings from one extreme (order and planning) to another (individualism and progress), a process of action and reaction, and the ideal position is the middleground, the compromise between such extremes. And because there is nothing really new under the sun and what appears to be new problems are old ones in a different guise, the historian can make a useful contribution to the discussion of current issues. The argument stands as a sober and balanced, if not new, defense of the "utility" of history.

In his search for parallels, Mr. Lipson has settled many questions and raised as many new ones. Use of expressions such as "the inevitable product of economic forces," the "normal course of change," may be overlooked, but the assumption of "inevitable" cycles, of the absence of historical novelty, is less easy to accept. "Planning" and "free enterprise" are big words, useful in general discussion but full of pitfalls in interpretive work. In the book *A Planned Economy or Free Enterprise,* private enterprise is taken as synonymous with individualism (another difficult word), free enterprise is based on the competitive pricing system, and planning is central direction of national resources. For purposes of historical narrative these terms may be accepted at their face value. It is where comparisons are made, of time or place, that difficulties emerge. The "planning" of sixteenth and seventeenth mercantilist England is of a very different order from the "planning" of England of the twentieth century, the modern state itself is highly unlike that of the earlier period, the conditions under which the "individual" operates in economic affairs display differences more pronounced than any discernible similarities, and the "entrepreneur" badly needs redefinition in each historical context. It is only by the broad use of terms that parallels may be found at all, and this very breadth obscures differences of which the author himself is well aware. And there is the further difficulty that generalizations based on the experience of a nation so unique in its environment of economic activity as England have made for distortions in the treatment of the national histories of other areas. For the reviewer, at least, the contributions in Mr. Lipson's work lie in the light thrown on various epochs in English history. References to cycles and parallels appear mainly as frills which add

little to and detract as little from this admirable and basically traditional history of the economic life of the English people. The volume has an index but lacks a bibliography.

W. T. Easterbrook

University of Toronto

Report to the President of the United States. By the Economic Survey Mission to the Philippines. Pub. 4010, Far Eastern Ser., 38. (Washington: Department of State. 1950. Pp. ii, 107.)

In response to the request of President Quirino of the Philippines, President Truman designated an economic mission to survey all aspects of the Philippine economy and to recommend measures that would enable the Islands to become and remain self-supporting.The Economic Survey Mission to the Philippines, which was headed by Daniel W. Bell (former Under Secretary of the Treasury) consisted of 5 members and 18 advisers drawn principally from United States government agencies, private business, and universities. The Mission submitted its report to the President in October, 1950 shortly after completing two months of intensive study in the Philippines.

The Bell Mission reports forthrightly on a long series of the Islands' basic economic and social ills: Inefficient and inadequate production; very low incomes, particularly in agriculture; a feudal land organization; unequal bargaining power of workers and tenants in dealing with employers and landowners; a tax system which bears too heavily on the poor and too lightly on the rich; over-reliance on exports of a few basic agricultural crops which provide but a meager livelihood for most of those engaged in their production; undue dependence on imports for many basic necessities that could readily be produced in the Islands; widespread inefficiency and even corruption in government service; and general disregard of leaders in agriculture and in business for their responsibility to improve the economic position of the lower-income groups.

The report intimates that the exceptional economic opportunities which the Philippines had to rehabilitate its war-torn economy and to transform it into one capable of supporting the newly sovereign state, were largely dissipated. By 1950, economic deterioration had reached the stage of crisis with no prospect of self correction. The mounting budgetary deficit was feeding a sharp inflation; the cash position of the Treasury was steadily worsening; capital was seeking haven outside the Philippines; and dollar exchange was being squandered on imports of luxuries.

The Bell Mission prescribed seven major corrective measures: (1) Imposition of sharply increased tax revenues, with proportionately greater levies to be assessed against high incomes and large property holdings; (2) expansion and improvement of agricultural production; land reform; and assistance of various kinds to small farmers; (3) diversification and expansion of industry; extension and improvement of transportation facilities; and estab-

lishment of a development corporation to coordinate the Islands' industrial program; (4) imposition of a special emergency tax of 25 per cent to be levied for not more than two years on all imports except rice, corn, flour, canned fish, canned milk, and fertilizer; (5) adoption of adequate programs in public health, education, and housing; promotion of trade unions; correction of various predatory employment practices; and establishment of a minimum wage for agricultural and other workers; (6) reorganization and improvement of public administration; higher salaries for civil servants; elimination of barriers to the employment of foreign technicians; and dispatch of a United States Technical Mission to assist the Philippine government in carrying out the various programs recommended by the Bell Mission; and (7) provision by the United States of $250 million through loans and grants to help in carrying out a five-year program of economic development and technical assistance, such aid to be strictly conditioned on steps being taken by the Philippine government to carry out the foregoing recommendations and, further, to be subject to continued supervision and control of the Technical Mission.

The Bell Mission follows its recommendations with this admonishment: "No one must expect that even so comprehensive a program as this will quickly or automatically remove all the ills of the Philippine economy. What it can do is to provide an environment in which people of the Philippines can work out a reasonable solution of their problems. What they ultimately achieve will be determined primarily by their own efforts and by the devotion of the Philippine Government to the interests of all the people. . . ."

The general diagnosis of basic Philippine ills reported by the Bell Mission does not differ materially from diagnoses found in earlier official and unofficial reports on the Philippine economy of which there have been at least several. There is also a marked general resemblance in many of the prescribed remedies. The Bell Report, however, does not—possibly for tactical reasons—call attention to the economic implications of the failure of the Islands to check its growth of population. There are now about 25 per cent more people in the Philippines than there were only 10 years ago.

As might have been expected from the short time available for preparation of the report and from the controversial nature of the subject with which it deals, some of the recommendations of the report are open to question.

The Philippines quite obviously needed to curtail its imports but the report does not make clear why the best method to achieve this objective is a "special emergency tax of 25 percent" for not less than two years on all imports "other than rice, corn, flour, canned fish, canned milk, and fertilizer." Even if this were the type of tax which would be the best on economic grounds (a premise which is at least debatable), the Mission might have been expected to foresee—as has turned out to be the case—that our own government would not accept it.

The recommended rate of import tax and recommended period of application were presumably based on the Islands' prospective balance-of-payments

position, on which the report prognosticated as follows (p. 38): "While the volume of exports will probably recover to the prewar level . . . the payments difficulties cannot be met by the moderate expansion of exports that can take place in the next few years. . . . On the basis of present prospects . . . United States Government disbursements . . . in 1951 . . . may drop by more than 50 per cent below the 1949 level. This is an anticipated fall of $180 million annually. No likely expansion of exports, nor rise in export prices, can offset the effect on foreign exchange receipts of this drop." On the basis of the "International Financial Statistics" reported by the International Monetary Fund, however, Philippine exports in the first four months of 1951 were at the rate of $492 million per year. This, $232 million higher than the rate realized in 1949 and $200 million above the rate forecast by the Bell Mission for 1951, is more than sufficient to offset the estimated $180 million decline in United States government disbursements.

The Bell report is not clear on whether the emergency tax of 25 per cent on imports is proposed in lieu of other import taxes or in addition to them. A tax of only 25 per cent is hardly high enough to discourage imports of many luxuries and non-essential articles and it would prove unduly burdensome on imports of many of the articles essential for ordinary consumption and for reconstruction. A considerable range of food staples, medical supplies, school books and equipment for industry, for example, might well have been added to the list of six products for which exemption from the tax was proposed.

Although the Philippines might well profit from carrying out most of the Bell Mission's general recommendations—particularly heeding the advice of the Technical Mission during the next five years—it should not regard the Bell Report as a blueprint of such unqualified merit that local architects should demur from making even extensive departures from it.

BEN DORFMAN

Washington, D.C.

Monetary Problems of an Export Economy—the Cuban Experience 1914-1947. By HENRY C. WALLICH. (Cambridge: Harvard University Press. 1950. Pp. xiv, 357. $5.00.)

Mr. Wallich's study of the Cuban economy is divided into two major sections: the first section is a review of Cuban monetary history and policies from 1914 to 1947. The second section is largely analytical, with particular emphasis on the processes of cyclical expansion and contraction, the mechanism of balance-of-payments adjustments, and the potential effects of exchange rate variation and exchange control. The last chapter, which deals specifically with central banking policy, is particularly interesting in view of the recent establishment in Cuba of a central bank.

This book is a welcome though delayed addition to the growing literature applying modern tools of economic analysis to the problems of under-

developed economies. Particularly noteworthy are the analyses of the expansion and contraction processes in an export economy and the problems to which they give rise, and the discussion of the potential effects of exchange rate variation in such an economy. The analytical achievement is even the more remarkable since the bulk of the book was written several years ago. Most of the propositions advanced by Mr. Wallich have in the meantime gained wide acceptance, partly as the result of the prior publication of several chapters in the book. Therefore, little purpose would be served by a summary of these analytic propositions.

The time span involved in the preparation of the study accounts in part for its major deficiencies, which take the form of internal inconsistencies and an undue emphasis, particularly in the historical chapters, on the cyclical aspects of Cuba's monetary experience.

The internal inconsistencies in the book are in part apparent and in part real. In the historical chapters, which make up the bulk of the study, the major purpose, according to the author, is to show the consequences of Cuba's lack of an independent monetary system, including a central bank, during the period 1914 to 1947. If these sections, particularly Chapters 3 through 11, are read as an independent study, the impression is gained that during the period from 1914 to 1947 the opportunities for compensatory action which were missed as a result of the absence of an independent monetary system were of relatively minor importance. In the analytical sections, which were written more recently, Mr. Wallich appears to hold greater hope for the potentialities of compensatory action under an independent monetary system, although even in the analytical sections the limitations on countercyclical policy are constantly stressed. This apparent inconsistency between the historical and analytical sections arises from a failure to specify in sufficient detail the factors which are to be taken as given in the treatment of each historical epoch. For example, in the discussion of the depression of the 'thirties (which began in Cuba somewhat earlier than in the United States) the implicit assumption was made that an independent monetary system in the preceding boom would not have resulted in Cuba having built up a sufficient level of foreign exchange reserves, behind which Cuba could have undertaken a more positive compensatory policy. Furthermore, Mr. Wallich reflects much greater confidence in the historical sections than in the analytical sections in the benefits actually derived from an unmanaged exchange rate and from the absence of exchange control. As a result, very severe limitations are placed in the historical review on compensatory policies.

Some real inconsistencies are evident within the historical chapters. In discussing the moratorium episode during the 'thirties, Mr. Wallich notes that monetary expansion or depreciation, or possibly both together, would have been economically desirable, since the laissez-faire policy followed by Cuba for the most part put the Cuban economy completely through the wringer. Yet, in his later discussion of the course of monetary events during

the 'thirties (p. 172) the conclusion is reached that there was really no significant shortage of money supply in Cuba during the great depression because the money supply moved in harmony with the value of exports.

The concentration of cyclical problems in the historical review and the failure to treat in the analytical sections in a more comprehensive fashion the relationships between Cuban monetary policies and long-term problems of economic development constitute more important weaknesses. They reflect something other than the fact, noted in the preface, that "Cuba's otherwise rich monetary experience includes no episode bearing on financial aspects of development programs." They indicate a disposition, shared by many of us in the late 'thirties and early 'forties, to abstract from the long-term development problem in treating cyclical aspects of monetary policies. Although in the first chapter and in the last chapter there are some brief discussions of the environment for economic development and of monetary policies related thereto, the analysis is not sufficiently developed and is not closely integrated with the rest of the study. To illustrate, one of the structural characteristics of the Cuban economy important both for the appraisal of past experience and as a guide for future monetary policy is the existence of unemployed resources. Mr. Wallich notes in the opening chapter the fact that there is both seasonal and structural unemployment in Cuba, but a judgment as to its scope is not made, and it is virtually ignored in the subsequent chapters. In the view of many trained observers such unemployment is pervasive in Cuba. It is cited as a reflection of the fact that no new dynamism has been substituted in the Cuban economy for the sugar development which dominated its earlier history. Although no one can claim that the existence of an independent monetary system or a change in monetary policy would alone supply a new dynamism in Cuba, an overriding fear of inflation or of exchange depreciation and exchange controls may constitute a real obstacle. Mr. Wallich is, of course, much too well balanced in his appraisal of the Cuban economy to yield wholly to such fears. Nevertheless, the emphasis in his discussion of the development problem in Cuba seems to be on the need for great caution. The principle is stated (p. 308) that development projects should be pushed during the depression and held back during the boom. Although Mr. Wallich concedes that the principle may have to give way to expediency, its applicability to Cuba is not questioned. The observation (p. 20) that during boom times "a large part of domestic savings cannot effectively be utilized for domestic investment because . . . the factors of production are already fully employed" is questionable if it is intended as a statement of fact rather then a definition of "boom times."

The structural deficiency in Cuba of the level of effective demand, particularly investment demand, reflected in the recent postwar period in a continued rise in foreign exchange reserves, is a basic factor not adequately appreciated in the appraisal of Cuban monetary history or in the application of central banking principles to Cuba's current problems.

Gerald Alter

Washington, D.C.

Statistics and Econometrics

On the Accuracy of Economic Observations. By OSKAR MORGENSTERN. (Princeton: Princeton University Press. 1950. Pp. ix, 101. $2.00.)

Economic data contain various kinds of errors. Definitions are vague, classifications are rough, and surveys and censuses are incomplete. Professor Morgenstern describes these and other errors, warns us of the dangers of neglecting them, and calls for a broad new policy to correct the situation.

To illustrate his points, the author is able to quote existing statistics where independent estimates of similar things exist. Thus foreign trade data as reported by different countries sometimes differ by more than the smaller figures, indicating errors of over 100 per cent. The Kuznets' estimate that errors of 10 per cent are not unlikely in national product totals is quoted, and other important differences in price and production statistics are observed. These illustrations serve the author's purpose of emphasizing the importance of the problem, but they are not so successful in explaining the complexities of the problem. Indeed, the error estimates are as liable to misinterpretation as the original data. For example, errors in year-to-year relative changes in national income are a different thing from the absolute error in a given year, and the two should not be confused. Morgenstern does not have the information to estimate the different types of errors, and this lack of data is the point which he makes.

We are warned that the importance of the defects in the data is increasing rapidly because the data are being asked to bear an ever-growing weight of evidence. Governmental, industrial, and labor decisions are based upon them. Economic studies of many kinds, some highly intricate, utilize them. Professor Morgenstern's immediate concern is the rôle of economic data in input-output studies, where estimates of errors in the theory itself magnify the importance of errors in the source data. It has turned out that the growth in the quantity of economic information has increased the use of data to the point that better understood data are necessary.

The author does not suggest any ready solution to the problem, since its complexities are many, and since the cooperative endeavors of many persons and institutions are necessary for solutions. The author is content to call attention to the problem, and to appeal for a fundamental change in the attitude of those concerned with economic data. This involves "bringing out in the open the nature of the underlying errors, the various types of bias involved, the differences and uncertainties of classification, etc., instead of relegating the information to the background of footnotes or not dealing with it at all" (p. 44). Especially should estimates of error be required of the agencies gathering data, for without this foundation, agencies utilizing the data are helpless. The author has a good deal to say about the meaninglessness of excess digits and decimals, so much so, that one fears that the practical result of the study may be to persuade administrators to lop some figures, with very little foundation of analysis. It is hard to believe that this curtailment would save as much expense as the author envisages. We may

well agree with Professor Morgenstern, however, that the hall-mark of good data should not be a demonstration that estimates are the best possible under given circumstances, but a complete and precise statement of the meaning and accuracy of the estimates.

PAUL SIMPSON

University of Oregon

Economic Systems; Planning and Reform; Cooperation

Private Enterprise and Governmental Planning—an Integration. By THEO SURÁNYI-UNGER. (New York: McGraw-Hill. 1950. Pp. xii, 389. $4.50.)

The author starts from some assumptions with which most social scientists will heartily agree: that all national economies, including that of the USSR, are composites of collectivistic and individualistic elements; that in increasing the amount of collectivism beyond some point a growing resistance is encountered and further steps are bound to become less beneficial or more detrimental; and that the same rule applies to the movement from collectivism toward individualism. From these assumptions Dr. Surányi-Unger develops an idea which may prove to be a gold mine. He tries to apply the apparatus of indifference curves to the problem of how much collectivism and how much "private enterprise" can or should exist in any given economy.

In order to explore the potentialities of this idea, however, a good deal more testing and probing will have to be done, and some of the tools will have to be forged with greater care than Dr. Surányi-Unger has used. To recognize the basic difficulty, we have to go back to the elementary concept of indifference curves. We may use Benham's example of the soldiers who receive each a ration of rum and a ration of cigarettes and who barter rum for cigarettes or vice versa to satisfy their individual preferences as completely as possible.[1] In preparing for barter, each soldier finds that various combinations of the two commodities would be equally satisfactory to him; if each of these combinations is represented by a point between an "all cigarettes" and an "all rum" ordinate, the connections between these points of equivalence will form negatively sloped indifference curves.

Obviously, in this construction it is essential that the sacrifice of a quantity of one good is the condition for obtaining more of the other. Is it equally necessary, in any given society, to renounce the advantages of additional collectivistic measures to secure the advantages of additional individualistic measures? Do we not rather, as a rule, find it possible to introduce more collectivism in a field in which this seems to be useful and at the same time to expand individualism in another field where we can do so with advantage? If we consider the conditions under which the beneficial and the detrimental effects of partial changes in the structure of the system can be separated from one another, we are in a sea of problems of which Dr. Surányi-Unger has only touched the surface.

[1] See Frederic Benham, *Economics. A General Textbook for Students* (London, Pitman [first ed. reprinted], 1939), p. 89 *et seq.*

He could avoid delving into that sea because he has approached the problem on a path which almost entirely avoids the crucial difficulty but, unfortunately, does not lead into the core of the matter. Dr. Surányi-Unger identifies the choice between economic collectivism and economic individualism with the choice between the satisfaction of collective and of individual wants. Surely, we can draw indifference courses, for instance, between the individual want for food and the collective want for national defense. Here the renunciation of an additional satisfaction of one want is truly the price we have to pay for an additional satisfaction of the other, since the decision concerns the use of resources and the same resources cannot be used up for two different purposes. But such "cannon-butter" indifference curves do not tell us how much free initiative and how much collective enterprise we should have or can have or shall have in the production of either cannon or butter. It cannot be seriously maintained that the latter question is not relevant to the problem of collectivism versus individualism, or that a society which gives more weight to the "cannon" side will always have more collectivization of the instruments of production than a society which emphasizes the "butter" side. In other words, the collectivistic or individualistic character of an economy is not determined merely by the distribution of resources among different kinds of want but also by the methods employed in the satisfaction of any wants, and the emphasis on certain wants, in preference to others, is no reliable indicator for (still less a measure of) a preference for certain types of method. Therefore Dr. Surányi-Unger raises an unsubstantiated claim when he speaks as if his indifference curves represented choices between a *generally* more collectivistic or a *generally* more individualistic character of society. The numerous passages in which he seems vaguely aware of the limitations of his argument do not remedy the basic fault.

But perhaps the attempt undertaken by Dr. Surányi-Unger may still be led to completion. The interrelationship between the beneficial and the detrimental effects of individual steps in collectivization and de-collectivization can certainly be more systematically investigated than they have been so far, and it may become possible to fit these effects into a scheme that would permit the application of the apparatus of indifference curves. If this road can be opened, it will be only fair to remember that Dr. Surányi-Unger was the pioneer who explored the first stretch.

The jacket describes the book as a "text" for "advanced courses in economic theory." Although I would certainly not call a highly experimental book like this a text, it may well be used in graduate courses as a basis for discussion. But for this purpose it would have been better if the author had shown a little more leniency toward the reader whose mathematical equipment is not equal to his own. With a little more explanation and with the use of simpler methods of mathematical presentation, even the despised tribe of non-mathematicians (among whom this reviewer belongs) can be led to a substantial degree of understanding of such matters as Dr. Surányi-Unger discusses. Aside from the inconvenience for a number of his readers, the kind of mathematical treatment chosen by the author is dangerous

because it produces a semblance of exactness while by no means are all the problems and their underlying concepts clearly defined: it is somewhat exasperating, for instance, to see Dr. Surányi-Unger use highly refined mathematical apparatus to measure the amount of collective economic planning without having worked out an even formally adequate definition of this highly controversial term.

CARL LANDAUER

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Economic Systems: A Comparative Analysis. By GEORGE N. HALM. (New York: Rinehart. 1951. Pp. x, 438. $4.50.)

Until recently most texts on comparative economic systems tended to contrast a highly imperfect and problem-ridden capitalism with a serene socialist state in which all problems might (by implication) be solved by "planning." In ninety-nine per cent of the literature *expanding* capitalism is compared with what will, on analysis, turn out to be *stationary* socialism. The notion that there are economic problems, especially regarding investment continuity, transcending the "planning" versus "non-planning" debate has had a hard time establishing itself.

On all these points Dr. Halm's treatment is in many respects a considerable advance over previous texts. The practical problems of socialism, as well as of capitalism, receive careful analysis, and the last half of the book is a review of intensely interesting specific historical material on Russian, German, and English experience. While Halm has not yet entirely emancipated himself from the limiting effects of stationary equilibrium analysis, and seems to me a bit to overstate its scientific universality (pp. 7-9), he nevertheless has achieved a much more dynamic formulation than has hitherto been customary. And it is refreshing to find it recognized that socialism—too—can be guilty of "over"-investment (pp. 116, 305).

Despite these many merits and and a frequent inpressive advance in realism, for example, regarding worker morale under nationalization (p. 382), Dr. Halm's book has a good many vulnerable points, some of which may be mentioned. The chapters on capitalism appeared to this reviewer particularly weak. They are written from the standpoint of an emotional "liberalism" which is sometimes almost rabidly equalitarian. Halm accepts the common idea (pp. 67, 68) that such attitudes are not value judgments but matters of "scientific" proof and gives his students no authority to the contrary. Bigness (in absolute size) has somehow gotten confused with "monopoly"; and "size" with cut-throat competition (p. 95). "Competitive" capitalism is praised for steering a "middle course" in language clearly involving deviations from pure and perfect competition (p. 87). Yet where to draw the line at "monopoly," or what monopoly is, is never stated (Chap. 8). And while "big" business is criticized for many pages, union restrictivism gets exactly one paragraph (p. 100).

On the matter of profits and dividends, Halm seems especially evasive. He inserts quotations (pp. 51, 52) to show that the profits of "big" business

should go to the managers rather than the stockholders and may be unnecessary as incentive, while his discussion of Marx is on a very superficial exchange-relation basis (Chap. 12). In the treatment of "surplus value" the moral justification of profit as a possible supply price is entirely dodged. The problem is omitted also in Chapter 16 where for a long time the impression is given that only depreciation and interest are important. Also even regarding profit as an indicator, it does not appear until Chapter 17, page 228, that in a socialist state profits are "the necessary gauges in steering the allocation of resources."

Perhaps the weakest point to this reviewer was the treatment of socialist over-investment. It does not seem entirely in line with Professor Halm's stated objectivity to have omitted (Chap. 9) all reference to the fact that according to many writers such "over" investments need not always be the result either of "mistakes" or lack of planning. He did not of course have to agree with the idea, but should not a scholarly and balanced work have mentioned its existence? Furthermore, the same conclusion is clearly implicit in Halm's own analysis.

Halm's comparison, in this regard, of socialism and capitalism is scarcely fair. Like the writer's *Economics of Disturbance*, his book points out that socialism can avoid deflation (p. 116) after what Halm calls a "mistaken" over-expansion. But, of course, no "mistake" is necessarily involved, and the impression given is that in avoiding unemployment we avoid all evil. That socialist "over" investment can lead, instead, to starvation, inflation, and death for millions is not stated, and only emerges by inference much later in the book, in the discussion of Soviet economics.

One final point may be mentioned. I find the cumulative effect of some of Halm's remarks rather disturbing. First of all, we *must* have more equality (pp. 67, 68). Next "in the preceding chapter we *had* (italics added) to arrive at the conclusion that the distribution of the national income cannot be significantly changed, if we want to maintain our private enterprise system" (p. 77). (Incidentally the text referred to seems rather to the contrary—p. 63.) And finally, on page 75, and again in discussing English socialism (p. 381), it is suggested that Lange is right in saying that one cannot socialize piecemeal. Do not these statements tend uncomfortably in the direction of a theory of inevitable revolution? I should like to close, however, by stressing once more that this is a thoughtful and stimulating book.

David McCord Wright
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Social Economy and the Price System—An Essay in Welfare Economics. By Raymond T. Bye. (New York: Macmillan. 1950. Pp. viii, 356. $3.50.)

Professor Bye's *Social Economy and the Price System* is a provoking book. The underlying theme is welfare economics in the Pigovian tradition; but often this is intermingled with moral criticisms of the American economy that are reminiscent of Veblen or with Utopian dreams of a collectivist United States worthy of Edward Bellamy. As a human being, one can agree or disa-

gree with each of Professor Bye's numerous social, political, and economic *dicta;* but as an economist, one finds little to analyze. Here, within three hundred odd pages, is set forth much of the best and the worst that economists have contributed to the ideas of reformers.

The work can hardly be intended for professional economists, for it does not contribute to value theory, income theory, or distribution theory. It would make an excellent text for undergraduates in the social sciences if read in conjunction with some book that would offset Professor Bye's political naiveté. I would especially recommend *Social Economy and the Price System,* even at the risk of apoplexy, to all successful persons over fifty years of age who believe that our economy cannot be improved.

Professor Bye commences by stating eighteen principles, pertaining to the selection of wants, the division of income, the balancing of present and future needs, and the quantity and efficiency of production, that he believes a social economy should follow. For example, the principle of optimum output is that each plant should be kept at the point of lowest average cost, except during short periods of abnormal demand (p. 238):[1] he suggests that, except where there are monopoly elements, a price system will tend to satisfy this requirement under certain conditions. Professor Bye also distinguishes three normative price systems. (1) A "natural" (or free) price system is one in which prices are allowed to find their own level in markets, substantially free from government interference, that reflect all the social factors that influence their supply and demand schedules. (2) A "protected" price system is one in which prices are uncontrolled "but consumers, investors, laborers, and enterprisers . . . must now conform to enlightened rules of fair dealing" (p. 40). Monopolies would either be suppressed or regulated, natural resources would no longer be exploited, and houses of ill fame would be prohibited. The government would regulate the economic environment surrounding markets rather than market prices themselves. (3) A "normalized" price system is defined as one in which prices are held close to their competitive norms by deliberate state control: such a price system can exist only in a centrally planned and directed economy. Today the United States economy includes all three kinds of price system. Although he does not say, one infers that Professor Bye inclines toward the authoritarian "normalized" price system rather than towards the truly liberal reforms of the "protected" price system.

Like anyone else, Professor Bye notes many of the imperfections of our economy. He decries its extreme income inequality, its misrepresentation of goods, its occasional monopolies of commodities and of labor, its fluctuating credit, its failure to make the most of human talent, and its predatory character. Here, too, is all the usual envy of the well-to-do.[2]

What is to be done? In suggesting reforms for the future, Professor Bye

[1] If Professor Bye had made his precept marginal costs equal to demand price, he would have had a valid principle for short- and long-run conditions under pure competition. This generalized rule of Hotelling is never mentioned. The special form of the rule, given by Bye, is comparatively clumsy; however, it does enable the author to avoid employing marginal concepts, as perhaps he wished.

[2] No one should have an income exceeding $25,000 a year.

is willing to substitute more tinted and blurred spectacles than those he reserves for glaring at the world as we know it. The fundamental remedy seems to be something called collectivism or general economic planning. Collectivism will do away with the wastes of competition, reduce cyclical unemployment to a very small minimum, improve the allocation of resources, eliminate the problem of monopoly, prevent inflations and deflations, and eliminate all income inequalities not needed as incentives. Apparently everything will be much simpler and better when the age-old problems of who is to do what and get what have been handed over to the rather ordinary people that comprise most government agencies.

The fundamental defect of *Social Economy and the Price System* is its lack of political "savvy." Three decades ago it was understandable that reformers might believe that collectivist governments would regulate in the general interest and be a distillation of all that is honest, wise, and good in mankind. Today, with the experiences of the United States, the United Kingdom and Soviet Russia before us, we should know better. As for the United States, it is now clear that its government tends to be forced into contradictory policies on behalf of conflicting special interest groups. As regards rents, the federal government regulates for the tenants. As regards farm prices, the government regulates for the farmers. As regards consumer prices other than food prices, the government regulates for the housewife. As regards fiscal policy, the government fears the taxpayer and inflates the economy with bank credit. Special interests are served, and the general interest goes by default, when a democratically elected government regulates the economic affairs of voters. On the other hand, voters being what they are, how can the government place the general interest above special interests unless it dispenses with elections and depends not upon voters but upon the police? It is useless, if not dangerous, to advocate economic reforms without giving equal thought to the bureaucracy capable of implementing them.

One cannot conclude Professor Bye's book without admiring and respecting its author. He is so patently a serious, sincere, and unselfish reformer. He is honest with his readers and mentions points that gainsay his thesis when they occur to him. He is not for or against workers, farmers, businessmen, blocs, or parties. He *is* opposed to poverty, special privilege, and greed. And he is very much in favor of Utopia.

STEPHEN ENKE

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Intellectual Capitalism: A Study of Changing Ownership and Control in Modern Industrial Society. By JOHANNES ALASCO. With a preface by Raymond Holden. (New York, Montreal, London: World University Press. 1950. Pp. xviii, 140. $3.00.)

The woods are full of books on how best to save capitalism. Is this a signal of distress? The debate shows widespread lack of agreement on the exact characteristics of capitalism as such, on the kind of distress it is in (if any), on its causes, and, of course, on the possible remedies. Some of the would-be

savers of capitalism are considered socialists by their fellow-savers.

A host of recent books has discussed the question of monetary or social correctives that might help capitalism survive. But what exactly do we choose to call capitalism? Is free enterprise in a strict sense, a workable competition, or simply private enterprise its decisive trait? At what point does public intervention turn into collectivism? Are authors today caught in semantics to the degree of having to present needed economic reforms as a campaign to save capitalism?

Johannes Alasco (which is the pseudonym of a Polish-born writer) puts the main emphasis on the structural changes in ownership and control that have occurred in America during recent decades. To this extent his approach contains some elements of Marx, Veblen, Berle and Means, Knauth, Burnham, and the Technocrats, but each of these elements enters the argument in a restated, diluted, or critical form. The main thesis is this: "The revolution of our time, brought about by the upsurge of applied science, is not one against, but within, capitalism. A new ruling class—that of industrial executives with a scientific outlook—is going to take over the economic power of industry from the present ruling class, composed of large stockholders and financiers. The term intellectual capitalism suggests this revolution very clearly" (p. xviii).

To prove this thesis, the author starts out from the assumption that man is essentially individualistic and egotistic, and that capitalism mirrors this basic fact. He defines capitalism as the ownership by private individuals of the controlling assets of productive enterprises, combined with social and political leadership based on such ownership. "Capitalism cannot subsist if the legislator does not follow the 'party line' of business" (p. 9). Mr. Alasco appears to advocate here a totalitarian capitalism based on voluntary acceptance by the people; the Marxists overlooked that "in a society with a balanced social structure everybody has his stake in the aims of the ruling class" (p. 11).

The concept of capital itself has, however, undergone a metamorphosis due to modern corporate organization. The immaterial, intellectual capital is now the source of the productive power and earning capacity of corporations. The real economic conflict today is that of jobholders versus stockholders. "Property has come to mean ownership of the income derived from the use of capital" (p. 20). "We are no longer a generation of savers and builders. *We are income consumers*" (p. 25).

In addition, there is an increasing rift among the executive jobholders themselves: the spirit of workmanship, represented by the production man (P-man), is pitted against the spirit of salesmanship, represented by the finance man (F-man); a distinction which appears especially sharp at the lower and upper ends of the corporate hierarchy. The F-man's income originates definitely in business profits; the P-man, however, can prosper under either capitalism or collectivism. However, since human beings are selfish by nature, collectivism, too, is bound to be a business enterprise. Marxist socialism has been creeping into the social organisms of the Western

world by an infinite variety of means; often has it been carried forward by misguided P-men in search of a "planning for abundance."

The essential thing, however, is the shift in importance from material to intellectual capital. Private property is being redistributed in line with this shift as it has been repeatedly in the historical development. The P-man, who actually comes to control enterprise (whether it is privately or publicly owned at first makes little difference) will eventually consolidate his control by acquiring formal property rights. "The capitalist of our day is a person who owns a portion of the intellectual assets under the form of a number of common shares. These represent capitalized intellectual power" (p. 84).

The controlling asset—which was land under feudal capitalism, raw materials under commercial capitalism, machinery under industrial capitalism, money investment under finance capitalism—is now of an immaterial, intellectual nature. "The expropriation of the stockholders by the technical intelligentsia is around the corner" (p. 91). Initial nationalization would make little difference in the long run, for private ownership will reappear in one form or another. Knowledge has become the real source of wealth. The new Captain of Science will eventually be both an owner and a manager of capital; he will be a production man with scientific intellectual training, and his economic system will rest on a nationally planned economy. It is essential, Mr. Alasco concludes, that the prevailing capitalist ideology in the United States recognize these changes; free enterprise in the old sense is passing, but capitalism is just assuming a new form. "Socialism and managerial enterprise are two episodes in this early stage of evolution of the new private enterprise" (p. 118). Unless American capitalism sees the signs of the times, the new professional intelligentsia will be attracted to collectivist systems which offer to it some very tempting opportunities.

To this reviewer's mind, this book is a most peculiar mixture of keen observations on corporate enterprise and highly dubious generalizations on human nature. It is far less foolproof in its forecasts than in its analysis of past developments; in neither case does it attempt any documentation worth mentioning. In subscribing to the statement of a widely read weekly that Mr. Truman's scheme of things "adds up to socialism" (p. 51), and on various other occasions, the author shows a semantic confusion which makes it unlikely that his argument will be taken as seriously as it might otherwise. It is too bad that his many interesting observations and provocative suggestions are blurred by loose terminology and thinking, unhistorical generalizations, and psychological oversimplifications.

ALBERT LAUTERBACH

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Cooperative Peace. By JAMES PETER WARBASSE. (Superior, Wisconsin: Cooperative Publishing Association. 1950. Pp. xiv, 273. $3.00.)

In this book a pioneer of the cooperative movement examines the causes of war and possibilities for peace offered when society is organized on the cooperative principle through local associations, regional and national federa-

tions, and world federation. The author states (Preface, p. vii) that the book is made necessary by the change now going on from profit capitalism to some other system. A struggle exists between two ideologies—free enterprise and centralized governmental control. Cooperation exemplifies free enterprise and private property. However, it differs from profit capitalism in that it substitutes the service motive for the profit motive; democracy for autocratic control by owners and officials; absence of debt for the piling up of debt; unlimited membership and abundance for exclusion and artificial scarcity; and ethical and peaceful practices of mutual and personal benefit for the competitive, warful, and destructive practices of business for personal gain.

Mr. Warbasse believes that economically the cooperative method of business can compete successfully with either profit capitalism or socialism. Presumably he would offer as proof the continued and rapid growth of cooperation in membership, societies, capital, business volume, and fields of service since the Society of Equitable Pioneers was founded in 1844. Total membership in cooperative societies of all kinds in 43 countries amounted by 1946 to 143,000,000 persons (p. 7). Monopolies try to hamper and destroy cooperative business. Thus the oil companies are trying to shut out organized consumers from the production of petroleum products. Cooperation's greatest danger, however, lies in the advance of socialism, that form of statism which is supplanting profit enterprise. Socialism can use coercive methods to promote state ownership and to prevent competition of other systems. Thus the voluntary method of cooperation can only hope to win by proving its superiority and by winning popular support.

Mr. Warbasse is at his best in describing the cooperative way and cooperation in action. Ten chapters on these subjects contain a good statement of the cooperative philosophy and program. Failure to deal adequately with the question of how democratic and efficient cooperatives would be in manufacturing, transportation, and other industries where large-scale production and enterprise are essential was disappointing to the reviewer.

Discussion of war is confined mainly to its economic causes and consequences. The usual causes are cited. A chapter is devoted to "the constant war" (hostilities among individuals), called "war" when it extends across international borders. Conditions necessary for peace boil down largely to those which would obtain if cooperative society prevailed everywhere. Cooperation means democracy, which is essential to peace; opposes strong central governments, with their war-making powers of coercion, nationalistic propaganda, and armament building; avoids competition for domestic and export trade by the cooperative method; removes the potent profit motive for war; eliminates race hatred and racial barriers; and promotes international understanding. In short, the only way to peace is the cooperative way. Many will question this conclusion, and also acceptance (pp. 104-6, 133-34) of the Marxian theory of imperialism (capitalist nations keep wages down and prices up, so that workers as consumers cannot buy all they produce, necessitating export of the surplus). The analogy (pp. 81-84) between cells of the human body and individuals comprising society is not convincing, and the contention (Chap. XXXIII) that cooperation conforms to natural laws relies on a discarded and untenable doctrine.

The book is well organized and clearly written. It draws heavily from the author's previous books[1] with little use being made of recent literature on the economics of war. Since it is apparently intended for popular consumption, the general lack of supporting references and the extreme brevity of some chapters may be justified. Though offering little that is new to the specialist, *Cooperative Peace* should prove interesting, provocative, and timely to the general reader.

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[1] *Cooperation a Way to Peace* (1939), *The Cooperative Way* (1946), and *Cooperative Democracy* (1947).

De Overheidsfinanciën in de Volkshuishouding. (Government Finance and the Economy) By D. B. J. SCHOUTEN (Leiden: H. E. Stenfert Kroese's Uitgeversmaatschappij N. V. 1950. Pp. xi, 158.)

Dr. Schouten believes that neither the completely free nor the closely controlled economy is desirable. Between these extremes lies the "directed" economy. Here the government seeks only to secure the appropriate general economic conditions and leaves the rest to the "free play of economic forces." Under this scheme, the government intervenes primarily, in a broad way, to help maintain a high level of income and employment. Schouten, therefore, examines the long-term influence of public finance upon the size, distribution and expenditure of the national income.

This macro-economic study evolves principally around three models: the classical, as defined by Schouten; the Keynesian; and the author's, a combination of the preceding two. The effects of governmental fiscal policy upon national income are shown by reference to these models. In two short appendixes, Schouten considers the relationship of government finance to the balance of payments and business fluctuations. In addition to these purely theoretical matters, there is an analysis of the changing rôle of the government in the national economy as illustrated by the experience of the Netherlands.

Professor Posthuma, the editor of the series including this volume, has neatly characterized the contribution made by this book. In the foreword he states that it contains a clear exposition of the classical and Keynesian approaches and provides the analytical techniques requisite to formulation of sound governmental economic policies.

WYTZE GORTER

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Business Fluctuations; Prices

Inventories and Business Cycles. By MOSES ABRAMOVITZ. (New York: National Bureau of Economic Research. 1950. Pp. xi, 632. $6.00.)

This is the most important empirical study of business cycles which has appeared since the publication in 1937 of Kuznets' *National Income and Capital Formation, 1919-1935.*

It is, however, more than a factual study. It interweaves statistical findings with theoretical analysis. Thus, both in terms of theory and statistics, it is a highly significant contribution to cycle literature.

The book is divided into three parts. Part I begins with a discussion of the rôle of inventories in business-cycle literature. Though far from being an exhaustive treatment, it does set forth some half-dozen theories relating to the rôle of inventories in the cyle. This is followed by the familiar standard description of the National Bureau measures of cyclical behavior.

Part II presents a picture of the cyclical behavior of inventory stocks. Attention is concentrated on (a) goods in process (often in the general cycle literature referred to as "working capital") (b) raw material stocks and (c) stocks of finished goods. The latter two might perhaps be set off apart as "inventories proper." Part III relates to the cyclical behavior of inventory *investment*. These parts contain a careful appraisal of deficiencies in the statistical data.

Part III necessarily goes back over much of the ground already covered in Part II, since inventory *investment* represents net additions made to stocks. It would seem to me that it might have been a better arrangement had the author treated "stocks" and "investment" concurrently throughout the book. The two things are inherently inter-related, and something would have been gained, it seems to me, if both aspects of the problem had been treated simultaneously. "Inventory *investment*" necessarily leads "inventory stocks" on the average by a quarter cycle.

Professor Abramovitz finds that manufacturers' inventory stocks as a whole lag behind the business cycle. The lag is from six to twelve months. If the cycle (as defined by the National Bureau) is typically around 40 to 48 months long, a lag of the magnitude indicated above suggests that inventory stocks as a whole lag somewhat less than a quarter-cycle behind the business cycle. This would indicate that inventory *investment* as a whole leads the business cycle by a small margin.

But it is perhaps not very useful to consider total stocks. The behavior is quite different with respect to different categories. "Goods in Process" are necessarily rather closely tied to output. This category comprises about 20 per cent of all manufacturers' inventory stocks. If "stocks" of goods in process coincided with the cycle, then inventory *investment* in goods in process must lead the business cycle by about one-quarter cycle.

Raw materials contribute about 40 per cent of manufacturing inventories. These stocks are composed partly of materials readily obtainable from American producers; in this case the lag of stocks behind the business cycle is short, perhaps two to three months. Another part of "raw material" stocks is imported. Such stocks are necessarily very slowly adjusted to cycle changes; indeed, the lag may well be a half cycle in length, thus producing an inverted movement of stocks in relation to the general business cycle. A third part of raw materials are of agricultural origin. The fluctuation in these stocks is influenced mainly by supply conditions, and only remotely by business-cycle conditions.

Taking an over-all view of all "raw materials," including all three categories listed above, it appears that *stocks* lag about three months (perhaps longer) behind the cycle. All in all, then, inventory *investment* in raw materials would precede the business cycle by a considerable margin. But there is high diversity in the movement of the different categories, ranging all the way from a considerable lead to even a lag of investment behind the general business cycle.

Finally there is the category of finished goods. These constitute about 40 per cent of total manufacturers' inventories. One group—goods made to *order*—are fairly closely tied to manufacturing activity. With respect to another group, namely, goods made to stock, the tendency is to lag a half cycle (*i.e.*, inversely to the business cycle) if the particular business cycle in question is fairly short. If the cycle is prolonged, however, the lag is considerably less than a half cycle (*i.e.*, the correlation is positive with a very long lag).

The over-all lag of *aggregate* stocks (goods in process, raw materials, finished goods) appears to be about six to twelve months, perhaps around eight months. Stocks of "goods-in-process" and "finished goods made to order" are synchronous with the cycle; total "raw material" stocks follow the cycle with a short lag; while "imported raw materials" and "finished staples made for the market" follow the cycle with a long lag. These conclusions are, however, all very tentative.

To sum up, since inventory *stocks* follow the business cycle by slightly less than a quarter-cycle lag, inventory *investment* must necessarily precede the cycle by a short lead. A "short lead seems more likely than a short lag, but we cannot be sure" (p. 460). Total manufacturers' inventory *investment* was found to reach its peaks and troughs in the same year as general business seven out of ten times between the two wars; retailers' and wholesalers' inventory investment, in eight out of ten times.

Inventory investment thus tends to lag about a quarter cycle behind the *rates of change in output*. If the acceleration principle operated instantaneously without lag, one would expect inventory investment to correlate with rates of change in output. But for this, as is well known, Professor Lloyd Metzler has a theoretical answer.

The empirical findings (p. 496) show conclusively that inventory *investment* played a much smaller rôle "in the major upswing 1921-29 than in the minor fluctuations in that period" (p. 495). Moreover, the data support the thesis that inventory investment plays an important rôle in the short or minor cycle. The evidence, however, is not adequate to give a conclusive answer to the question whether "the shorter declines of business are initiated by the appearance of saturation in the demand for additional inventories or by a failure of demand for other kinds of goods" (p. 497).

The lag of stocks behind the business cycle revealed in the data fit quite well, as indicated above, with Metzler's analysis of the lagged adjustment by businessmen in their effort to bring inventories into line with changes in sales. The conclusion reached by Abramovitz is that the Metzler adjust-

ment process appears to be plausible (p. 498), but longer series of inventory data than are now available are needed to prove it.[1]

Cycle literature is full of shrewd guesses about inventory stocks and inventory investment, and often one finds apparently quite contradictory views expressed. We can now see from Abramovitz's study that it often turns out that all *could* be right, depending upon which particular category of inventories was under consideration by the author in question. With respect to the *over-all* picture, it is interesting to see how nearly Wicksell had it right in his *Lectures* (Volume II on *Money*, pp. 213-14) first published in 1906. His intuition was right, but he had very little empirical evidence. Many a dark corner in business cycle literature would have been illuminated had Abramovitz's volume been available to the early pioneers of modern business-cycle theory. Abramovitz's work will for a long time to come occupy a place in the first rank of business-cycle studies.

ALVIN H. HANSEN

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[1] In this connection see my discussion in *Business Cycles and National Income* (New York, 1951), pp. 471-76, based on Metzler's analysis, and the supporting empirical data drawn from Abramovitz's *Occasional Paper*, No. 26 (New York, Nat. Bur. of Econ. Research, 1948).

Inflation in the United States 1940-1948. By LESTER V. CHANDLER. (New York: Harper & Brothers. 1951. Pp. xi, 402. $6.00; text ed., $4.50.)

With the clarity which we have come to associate with his pen, Professor Chandler has written an admirable account of the monetary and financial developments of the war and postwar periods. In summary, his book is a quite thorough statement of what happened to prices, money, saving, credit, taxes, and to output and its components in the period under examination. To a somewhat lesser extent he addresses himself to the question of "why?" The period is, of course, a fascinating one, so that his story has interest, as well as pertinence to present policy problems. The text has 109 tables and 14 charts, almost all of them based on data with which we are familiar, but quite frequently presented in very useful and novel form. The tables alone make the book invaluable either as a reference for those working in the field, or as a convenient summary for those whose major interests lie elsewhere.

The author states in his preface that the book "is written in such a way as to be understandable by anyone with a general knowledge of economic processes." This is literally true. The economist who knows the period at all will find no new analysis and few new facts. As a matter of fact, the process of writing down sometimes means that the analysis stops just where the problems become really interesting. For example, the sections on incentives, beginning on page 119 and again on page 390, merely summarize the customary position that taxes should not be so high as to penalize incentive, but probably could have been higher without doing so. There is no discussion of the distinction between, or the relative importance of, the price and income effects of taxes on incentives.

Again, the discussion of the effects of wage increases on inflation in the postwar period (in Chapter 16) in effect simply says that wages both pushed

costs up and got pulled up by rising incomes and that it is difficult to tell which is more important. This is, of course, unassailable, but one misses the satisfying sort of careful analysis of this problem perhaps best typified by W. A. Morton's article in this *Review* (March, 1950, pp. 13-39).

The foregoing are noted not as criticisms but as indications of the level at which the book is written. I suppose it is true that incursion into a more sophisticated type of analysis would have a high cost in lost readers. And the virtue of this book is that it can be read and understood by Congressmen and administrators. It is quite obvious that many of these remain unaware of the terrible dangers of going through even a partial mobilization with a control system which has as an important by-product the addition of more and more assets, most of them liquid, to the portfolios of our citizens and institutions.

It is a reviewer's privilege to cavil, and I want to indulge twice. On page 50 and again on page 222, the consumers price index is used to obtain "real" gross national product over time. The procedure is properly qualified in the text so my point is truly captious. But I can't help myself: this just shouldn't be done. My second indulgence concerns Table 7 (page 38) which shows annual increases in personal disposable income, in personal consumption, and the ratio of the second to the first. A footnote identifies the ratio as the marginal propensity to consume. It turns out to be 3.5 in 1946, and well above one in 1945 and 1947 also. But this is surely not marginal propensity to consume in any usual sense. Consumption increased in the immediate postwar period because goods became available; almost certainly it would have increased even without an increase in income. It is, therefore, misleading to view it as a function of the increase in income, which is the concept expressed by marginal propensity to consume.

A final point may be made. On page 71 and on page 130 there is a clear inference that if the budget during the war could have been balanced, the inflationary pressures would have disappeared. The fact, of course, is that when government expenditures are rising from a full-employment situation it is not enough to balance the budget; a surplus is necessary if inflationary pressures are to be eliminated through fiscal policy (assuming the community's marginal propensity to consume to be less than one). This point is not at all crucial in Professor Chandler's argument, but it seems generally not appreciated in the profession and it is a shame to miss an opportunity to emphasize it.

But none of these points is serious, especially in view of the limitations the author has consciously and properly established for himself. He set out to prepare a clear and readable review of the monetary and financial aspects of the war and postwar period. He has succeeded admirably in producing a book which deserves to be read widely. It should prove most useful in helping us as a society to arrive at better decisions on how to combat the current inflationary threat.

Joseph A. Kershaw

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The Nineteen Fifties Come First. By Edwin G. Nourse. (New York: Henry Holt. 1951. Pp. iii, 184.)

In this little book of 184 pages, the former chairman of the Council of Economic Advisers presents what to many readers will seem an oft-told tale, and to others a provocative discussion of our basic socio-economic problem. Yet others, when they have finished the book, will feel that the tale is still untold.

Mr. Nourse sketches the development of farm, labor, and business pressure groups. In their quest for high income and the demand of each that the economic system shall give it security, they ask more than the economic system can give. The three groups between them bring inflationary pressures which, abetted by a national state of mind, by politicians who see federal deficits and inflation as a way of life, and by a military program which many are unwilling to tailor to economic reality, threaten to explode the economy, or to bring statism which may end our way of life. The abundant life may come in the year 2000, but the problem of the 1950's is group pressures and inflation. "Was 1950 our lost week end?", Mr. Nourse asks in the concluding chapter.

Mr. Nourse's remedy is simple to state, if not to achieve. We must all be mature. He accepts the pressure groups, but exhorts them to use their power for the proper protection of their members, not for greedy ends.

I suppose it is inevitable that in endeavoring to present this message in a very small and popular book, the author falls into superficialities and economic half-truths. Thus, unless I misunderstand what seem clear statements, Mr. Nourse states that advisory guidance alone, leading to efficient farming practices, "lays the solid foundation for economic stabilization of the agricultural segment of our economy." Full employment requires proper cost-price relationships, and, implicitly, if these were achieved, Say's law of markets would operate and all would be well (pp. 105-106). If we prevent inflationary booms, we will have prevented depressions (p. 114). And, most amazing of all, in a primitive economy capital had to be accumulated before productivity could be increased by the introduction of better equipment, but in a credit economy, "new ventures need not be limited by the amount of capital goods already produced and saved" (pp. 110-11).

But these statements must not distract attention from the philosophy which is presented. How can the economy operate effectively? By self-denial. "To be master of what we build, the individual must control himself as member of an interest group and as citizen. It requires a willingness to practice self-discipline within our organized economic groups and various levels of government which is not present today" (p. 25). "To subordinate one's own demands and forego the use of power to enforce them is not a harder lesson than has been mastered in many areas as the arts of civilized life have been developed" (p. 107).

It is not entirely certain that the situation which Mr. Nourse fears actually exists, though I suppose most economists believe that it does. The presence of inflation does not prove the existence of intolerable group pressures. It may merely prove that the public does not understand that tough fiscal and

monetary policies would be in its own interest. It is possible that existing group pressures are not so great as to break down price stability during high employment. The period 1948-1950 offers some hope that advancing technology furnishes enough cushion to satisfy all three groups without inflation. To this basic question of fact, Mr. Nourse *assumes* an answer. He does not examine the data.

Yet it would be folly to deny that the *danger* exists. But even it we accept Mr Nourse's assumption, his exhortation provides no rule by which to guide action. For what is at stake is the division of a pie. Self-restraint by one group means acquiescence in a lesser degree of self-restraint than otherwise, or in other words in a greater degree of aggression, by another group. Self-restraint in the public interest may have an appeal; but concretely, if the problem is as Mr. Nourse pictures it, self-restraint means acceptance of reduced income by one group in order that a rival group may have increased income.

Clearly, no group need accept responsibility for inflation, or for resort by society to statism to suppress inflation, if its demands have been right and just, and the inflationary pressure has arisen from the unjust demands or reactions of other groups. In this context, can anyone doubt that moral exhortation to be meaningful must be accompanied by a rationale for determining the appropriate degree of self-restraint by each group? The problem in asking self-restraint is to develop a yardstick by which the three groups can be brought to agreement concerning the proper division between them of the social product—or, at least, a yardstick which will imbue in each group enough uncertainty concerning the virtue of its position so that it is willing to assent to a stabilization compromise.

But in the absence of an atomistic society, there is no economic yardstick by which the division which in some sense is "proper" can be determined. Even if the division which would obtain under conditions of atomism is accepted as a yardstick, it cannot be calculated if atomism does not exist. If there is a philosophic or moral yardstick, related in some way to egalitarianism, by which the product of a given period "should" be divided, it has not been stated unambiguously. And when stated it will probably conflict with economic considerations of incentive relating to maximization over time of social product and the material level of life. Some of the conflicting considerations may be incommensurable.

If they are not—if a yardstick is conceptually possible—then a tremendous contribution to our society remains to be made, in the hard task of stating the yardstick. But to this hard task—and to any consideration of alternative solutions—Mr. Nourse has made no contribution. He has simply said, "We must all be self-restrained." This is why to at least some readers, at the end of Mr. Nourse's book the tale will seem still untold. However, his exposition of a danger and his exhortation may in themselves be useful.

His account of the development of the three pressure groups is unemotional in tone—though he seems to this reviewer to regard labor and business as sinners, but farm groups as virtuous until put upon by politicians. Some emo-

tion appears when he refers to government policy. It would seem that he doubts the sincerity of some of the officials who disagreed with him during his government career. When he refers to these conflicts, there is understratum of bitterness, and a questioning of motives, which is absent elsewhere.

He writes well, urbanely and smoothly. He is something of a phrasemaker; on almost every page he turns a phrase or coins a term, which even if a little forced, livens the narrative and carries the reader along.

EVERETT E. HAGEN

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Money and Banking; Short-Term Credit; Consumer Finance

The Management of Bank Funds. By ROLAND I. ROBINSON. (New York: McGraw-Hill. 1951. Pp. vi, 425. $5.50.)

A long time ago it was a trite saying that there are three classes of banks, those the banker runs, those borrowers run, and those the banking department takes over. It was also then commonly observed that the second class of banks soon becomes the third class, just as slow and doubtful loans tend finally to emerge in the charge-off classification. All this was just a way of saying that not enough bankers have thought out their problems systematically and each in its proper perspective to others. For such bankers this scholarly work by a distinguished student of finance should be helpful in reducing the area of blind guessing. This comment stands despite the fact that the author himself would be the first to admit that bank administration is perhaps more of an art than a science because "science has not yet furnished inviolable rules."

The author begins with an analysis of the problem of "protective liquidity." Herein is introduced most of the material usually comprehended under the distinction between primary, secondary, and perhaps tertiary, reserves. Next, attention is given to loan policy with adequate emphasis upon modern developments in this field. Investment problems thence engage the author's interest, while the concluding section is devoted to the "Sources and Uses of Bank Profits."

The unfolding of the argument is done so skillfully that the reviewer can do little except praise. The author's grasp of economic problems is so firm that involved language is avoided, so much so that the reader may easily be tempted to disparage the depth of the analysis. To those of this mind it may be well to recall that there are two kinds of clarity, that of the superficial and that of understanding, and that this book reveals the latter type of clarity. The author is not the kind of economist who would darken counsel "till the student is lost in a bewildering maze of useless metaphysical abstractions."[1]

What attention should economists, as distinguished from bank administrators, give to a work of this type? To this, the author can only reply that what-

[1] Compare Thomas Wilson's references to Durbin, *Fluctuations in Income and Employment*, 3rd ed. (New York, 1948), p. 76.

ever degree of attention they give will probably not be enough. As the reviewer has written elsewhere:[2]

> Economists have been engrossed in the broader issues of banking, in problems of the banking system as a whole and . . . they have been trained to employ in their analyses over-all statistics, such as total loans and investments, aggregate deposits, index numbers of prices and of physical trade, and deposit velocities. Relatively few of them have had opportunity to engage in detailed analysis of the special problems of bank management. They have tended, moreover, to regard such work as falling in the narrow field of business administration. In the inner circles of economists little kudos is to be gained from expert understanding of the principles of successful management of the individual bank.

It would seem, therefore, that the best service the reviewer can render is to argue the importance to the economist of an understanding of the principles of bank administration. It is pointed out:

1. The administrative costs of commercial banking must be taken heavily into account in any comprehensive and satisfactory theory of the determination of interest rates.

2. As Mr. B. M. Anderson has contended, individual firm equilibria may be a more significant aspect of economic stability than aggregative equilibria and skillful credit granting must be relied upon to promote such stability.

3. Broad quantitative analysis in the monetary field, no matter how useful it otherwise might be, is often handicapped by serious difficulties of definition. The reader will recall, for example, how much controversy has developed out of the problem of determining for statistical purposes the ingredients of "the money supply." Since this is so, it is often necessary for economists to look for "qualitative" instead of "quantitative" phenomena in estimating the soundness of the credit situation. Certainly, this was true of the period preceding the stock market collapse of 1929.

4. Over-all aggregative type of analysis gives end results rather than an understanding of the processes that produced these results. From an over-all point of view it appears that the order of sequence runs from bank assets to bank deposits. To an individual banker, however, the relationship is quite the reverse. To show end results economists quite frequently adopt the device of assuming a single bank to represent the entire banking system. But in adopting such procedure economists should always remember that no head of a bank that comprises all would behave in the manner required of our independent unit bankers.

5. Prediction as to how bankers will respond to such developments as increased or decreased reserves is impeded unless it is possible to form some reasonable estimate as to how credit granters will behave. Bankers are living beings, with special biases and mores, and not just robots.

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[2] *Money, Currency and Banking* (New York, 1942), p. 205.

Principles and Practices of Money and Banking. By CHARLES R. WHITTLESEY. (New York: Macmillan. 1948. Pp. xxiv, 688. $4.75.)

A dozen or more "beginning" textbooks in money and banking, written since 1946, are available to the instructor today. A range in dates of publication of five years is of no great significance if full use is made of the Federal Reserve Bulletin and other up-to-date materials distributed at small cost by the Board of Governors. Thus, the Whittlesey book can be considered as competing with the whole gamut of texts that range from those that are almost exclusively descriptive on the one hand to those that stress monetary principles to the exclusion of institutional details on the other. This book is fairly well in the center of the range.

Professor Whittlesey has had considerable experience as economist for insurance companies and banks. The principal justification for his textbook is that it is intended to "bridge the gap between the work of the college classroom and that of financial institutions" (p. vii). It is impossible to judge how successful the book is in attaining this objective, since the nature of the gap is not specified. Two observations, however, are pertinent: First, the book does not insult the intelligence of the reader by attempting to offer a training course in how to become a bank clerk; indeed, the book is at a fairly high and challenging level of ideas, rather than at a level of facts and assertions. In the second place, in some respects the book seems to have been written for the present as well as the potential financial executive. In particular, the interpretation of the sometimes controversial income and expenditure approach is skillfully designed to soften its impact on the potentially unsympathetic ear.

The strongest characteristic of the book is its treatment of the functional operations of commercial and central banking. Pre-Federal Reserve history and purely descriptive material are at a minimum; treatment of current problems of interest rates, portfolio management, and government fiscal policy as it impinges on banks and other financial institutions is unusually good. The careful student of this book will be able to read the financial press with considerable intelligence. The chapters on "The Structure of the Financial System," "Economic Change and the Banking System" and "Proposals for Banking Reform" are particularly interesting and unique.

Criticisms of a textbook are likely to reflect the personal idiosyncrasies of the reviewer as much as they are to show up flaws in the text. To this reviewer, the weakness of the book lies in its treatment of monetary theory and analysis, and their relationship to monetary and fiscal policy. There are two chapters devoted specifically to monetary theory: Chapter 5, "Theories of the Value of Money," which gives a good introduction to quantity versus income theories; and Chapter 23, "The Income Expenditure Approach to Monetary Theory and Fiscal Policy," which is included in a section entitled "Proposals for Monetary Reform." This organization reflects the basic emphasis of the book on the stock or quantity of money and its effect upon the level of prices, rather than on payments flows and their effects on employment as well as prices. To be sure, there are chapters on

both payments (Chap. 23) and employment (Chap. 24), but this analysis is pretty well confined to these chapters, and does not flavor the whole book as do the ideas in the chapter on the quantity theory of money. The position of the two monetary theory chapters is hardly conducive to an understanding of the relations between various approaches to money; in only one sentence is the cash balance approach mentioned as such. Generally speaking, the possible and desirable objectives of monetary and fiscal policy are not formally discussed, and the process by which monetary and fiscal changes may be expected to exercise their effects is inadequately presented.

Some of the author's definitions are confusing. Money is defined as anything that performs the monetary functions, and embraces both circulating and reserve money as well as the unit of account and the medium of exchange. The same money cannot perform all of these implied functions at the same time, for the functions themselves are not parallel in the same plane. Elsewhere, speaking of member banks, the author states: "Working reserves, regardless of their size, are never counted as excess reserves. The term applies exclusively to legal reserves, *i.e.*, to deposits at the Federal Reserve" (p. 124). This categorical statement forces him to refer to redundant funds other than Federal Reserve balances as "idle resources awaiting more permanent disposition" (p. 128) or as "'economic' as contrasted with legal" excess reserves (p. 132).

In spite of these criticisms, which some readers will consider as inconsequential or as not pertinent in referring to a beginning book, the student will find this text to be clear, well written, well organized and interesting.

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Monetary and Foreign Exchange Policy in Italy. By FRIEDRICH A. and VERA C. LUTZ. Princeton Studies in International Finance, No. 1. (Princeton: Princeton University Press. 1950. Pp. 45. $1.00.)

In this pamphlet, Professor and Mrs. Lutz review and analyze the internal monetary developments, the balance of payments and the foreign exchange policy of Italy during 1946-49.

In no other country in the postwar period has internal monetary policy been so bitterly fought over as it was in Italy during these years. This dispute extended to the international field, with the U.N. Economic Commission for Europe and the Bank for International Settlements lining up on opposite sides. A similar lack of agreement manifested itself within the U.S. government and within ECA itself. (Even in the summer of 1950, the unauthorized remarks on this subject of an ECA official at a cocktail party in Rome led to a major diplomatic and governmental crisis in Italy.) There was even disagreement on the facts: one side arguing that Italy was in a severe depression, and the other that Italy was making a good recovery from the war.

This Lutz study is particularly valuable, therefore, as the analysis by independent students of the actual facts of the Italian situation (they found

that Italian progress in economic revival compares favorably with that of other European countries) and as to the policy pursued. As to the latter, the Lutz' study makes quite clear that far from having a deflationary policy, there was rapid monetary expansion in 1948 and somewhat slower expansion in 1949. The only valid criticism in the attacks which were made on Italian financial policy is that a slightly more liberal credit policy might possibly have been safely followed in 1949 (and more effective administrative action could have been taken to carry out the investment program financed by ECA counterpart funds). The bulk of the criticisms lacked appreciation of the realities of the situation. It was utterly unrealistic to expect Italy, whose people have seen 98 per cent of the value of the currency melt away and where direct controls are literally unenforceable, to be able to pursue "a tight-rope policy of full or over-full employment on the edge of inflation."

Also valuable is the section on Italy's foreign exchange policy. The Italian floating foreign exchange rate system has been one of most interesting and most successful of the postwar experiments. It was undoubtedly the inspiration for the similar French system. This discussion, too, should be of considerable interest to all students of international finance.

ANDREW M. KAMARCK

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Money in the Law, National and International. By ARTHUR NUSSBAUM. (Brooklyn: The Foundation Press, Inc. 1950. Pp. xxxii, 618. $8.00.)

This book is considerably more than a revision of the author's 1939 publication entitled *Money in the Law.* Besides being an extensive rewriting and rearrangement of the material in the earlier work, the present volume places much greater stress on the international aspects of money. The sections dealing with warfare and military occupation and with the International Monetary Fund are entirely new. Scattered references to the monetary history of the United States in the older volume have been consolidated with the principal section on that subject and now receive separate treatment as an Annex to the two main divisions dealing with the law of money in general and money in international law. The entire publication has been brought up to date in its legal aspects through the inclusion of recent legislation and court decisions on the subjects discussed.

Professor Nussbaum's principal objective has been the development of a general legal theory of money. By this he does not mean a theory of money in the economic sense. Instead, he wishes to present general principles which have been used, and may be used, by the legal profession in its approach to money and monetary matters. Although the discussion therefore proceeds from a legal point of view, the author feels that not only lawyers but also economists can benefit from the juristic treatment of money.

Professor Nussbaum must be classified as a nominalist in his conception of money (pp. vi, 26, 107-13, 142). His nominalist position is established through his explicit rejection of metallism (pp. 1-4, 22) and the State theory of money (pp. 5-10), and through his definition of the *monetary unit* as a "phenomenon

of social psychology" (p. 14). The term *money* he reserves for "the concrete object . . . which, irrespective of its composition, is by common usage given and received as a fraction, integer or multiple of" the *monetary unit* (p. 13). He states that "in the phenomenon of money the attitude of society, as distinguished from state, is paramount" (p. 8). Despite his emphasis on social usage and his rejection of the theory that money is necessarily the creation of the state, he refers to bank deposits as "substitutes for money" (p. 142) and confines money to coins and paper money (p. 16).

A reviewer[1] of Professor Nussbaum's 1939 volume has called attention to the inconsistency between the author's definition of money in terms of social usage and his exclusion of bank deposits from the category money. As that reviewer points out, "records of bankers and their customers should pass muster by any standard which admits greenbacks." In the present volume, Professor Nussbaum takes note of this criticism but does not modify his stand. Instead, he points to many differences in the law between bank notes and bank deposits, these differences stemming from the "fundamental distinction of tangibles and intangibles in law."

The present reviewer is not qualified to argue with Professor Nussbaum on a point of law. He can only suggest that, whatever the distinctions made by law between bank notes and bank deposits, there is something seriously wrong with any legal concept which would lead a court to exclude a country's principal medium of exchange from the category money. Certainly, bank deposits —or better, the checks themselves—are the principal medium of exchange in Anglo-Saxon countries. Certain statements by Professor Nussbaum, *e.g.*, the use of the term "money substitutes" and the emphasis which he places on the change from "corporeal" to "non-corporeal" when money is deposited in a bank, suggest that he thinks of deposits as arising largely through the placement of coin and paper money in a bank, and that he fails to appreciate the significance of deposit-creation through the bank's acquisition of earning assets. Such a failure leads, of course, to the notion that bank deposits "represent" true money, *i.e.*, coin and paper money, but are not money in their own right.

Although some portions of this book are of little interest to the economist, *e.g.*, the discussion of debt, which is treated strictly from the legal point of view, other sections are very worth while both for the historical material presented and for the high standard of economic analysis. The reviewer particularly recommends the discussion on the International Monetary Fund. Perhaps because of his greater attention to the detailed provisions of law, Professor Nussbaum is much more conscious of the limitations of the Monetary Fund than have been many economists whose enthusiasm for the noble goals expressed in the Fund's charter have led them to neglect the limitations imposed by the practical operation of the Fund.

The sections of this book which will be most interesting to economists are: Chapter I, Book I, where the author's concept of money is presented; Chapter III, Book II, where exchange control, money and war, and the International

[1] Albert Gailord Hart, in *The University of Chicago Law Review*, Vol. 7, pp. 195-97.

Monetary Fund are discussed; and the Annex, which provides a remarkably concise, yet accurate and inclusive, monetary history of the United States. In addition, students of economic doctrine will find throughout the book references to many interesting laws, customs, and theories on the subject of money.

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Public Finance

Effects of Taxation: Corporate Mergers. By J. Keith Butters, John Lintner, William L. Cary, assisted by Powell Niland. (Boston: Harvard Business School. 1951. Pp. xviii, 364. $4.25.)

This study is the second in a series of investigations being conducted at the Harvard Graduate School of Business Administration on the effects of taxation on business. While the report is principally concerned with the influence of tax policy on recent mergers in industry, the authors have sought to compare in broader terms the nature of the three principal merger movements which we have experienced in this country. Their point of departure is the 1948 study of the Federal Trade Commission which attributed to the recent merger movement consequences comparable to those of the earlier combinations, and the criticisms of that study particularly in respect to the new rôle which rising tax rates have played in promoting mergers. The basic materials for the report were collected through a series of some 100 case studies of mergers, during the period of 1940-1947, in which tax considerations played some part.

The view is widely held that the necessity for meeting estate taxes has often forced the liquidation of small business enterprises and their merger with larger firms. Some have attributed to this fact an important part of the difficulties which small businesses have encountered in maintaining a supply of venture capital sufficient to survive competitively. An exchange of the stock of a small firm for the more marketable securities of a larger firm offers a particularly attractive means for meeting the contingencies of death or retirement, because of the tax savings involved. Whereas the attempt to provide for estate taxes through declaring dividends or redeeming stocks subjects these payments to personal income taxes, exchange of stock can often be arranged free of taxes; at most, accumulated profits are taxed at the capital-gains rates which are much lower than the income-tax rates.

The authors found, in the cases which they examined, that tax considerations of this sort have in fact been present in a number of recent mergers. They discovered, however, that the implications of tax motives are much broader than this and that the mergers which they examined were in most instances influenced by non-tax considerations as well. Some closely held firms were induced to merge with larger concerns partly in order to avoid the application of taxes on undistributed profits, and in order to enable the owners to diversify their investments without incurring the burden of

personal income taxes on dividends. These latter factors have been particularly important in the cases of firms which expanded greatly during the war, and lacked the capital to convert to peacetime uses and to maintain their competitive position in the face of the need for continuing technical research and the development of new markets. On the other hand, the authors found, the lack of competent management replacement was in the case of some well-established small firms a principal factor leading to their merger with larger concerns. And in some cases in which there was no immediate need to replace management, merger with a larger firm possessing specialized personnel was sought partly in order to lighten the burden of staff work necessary to comply with government regulations.

In almost all of the cases examined, the authors found that the combination of factors leading to merger was such as to make it difficult to isolate the importance of the tax considerations. According to their own appraisal, however, they concluded that taxes were of major importance in about ⅖ of the mergers involving corporations with assets between 15 and 50 million dollars; in ¼ to ⅓ of those in the 5 to 15 million dollar class; in about ⅕ of the 1 to 5 million dollar enterprises; and rarely in the case of smaller firms. Their general conclusion is that the influence of tax considerations upon the merger movement of the '40s was not as great as commonly thought, and does not justify a major overhauling of the tax system.

Their comparison of the recent merger movement with the earlier combinations has led the authors to the view that: "the recent merger movement has produced very small increases, at most, in over-all levels of corporate concentration as measured by the distribution of total assets" (p. 272). They also contrast the mergers of the '40s with the earlier mergers in terms of the size of firms and the importance of the industries involved. In this broader survey, the authors found that there were approximately 6500 manufacturing and mining firms which merged with larger concerns during the '40s, representing total assets of about 5 billion dollars and covering about 5 per cent of the total assets of the firms in those industries which reported income taxes. These mergers increased the share already held by firms with assets over $50 million by less than $1/40$ of their previous share, as contrasted with the several hundred per cent increases resulting from the mergers of the period 1879-1903. While the firms affected by the recent merger movement were mostly small, with assets averaging 1.7 million dollars, the merger movement of the earlier period was characterized principally by the combination of the larger firms in the affected industries, and this was to some extent true also of the mergers of the '20s. Moreover, while the mergers both of the '90s and the '20s affected the leading manufacturing industries of the period, few primary fields were involved in the mergers of the '40s. One further contrast drawn with the earlier mergers was the reduced rôle played by promoters and investment bankers and the lack of outside equity financing.

The authors are careful to limit the conclusions which they draw from their factual studies. They indicate that they have not assessed the effects

of these mergers on competition, and have not carefully examined all of the considerations which may have produced mergers during this period. In respect to the field studies which they conducted, they point to the marked predominance of mergers at the initiative of the selling firm; but, while they show that this fact may be taken to imply a lack of desire on the part of the purchasing firms to eliminate competition, they disclaim any such explicit conclusion in their appraisal of the recent merger movement. They are reluctant also to draw any clear conclusions from their comparisons of the recent and earlier merger movements.

This study represents a collection of case materials which will prove useful and suggestive to students of our antitrust policy. Within the limits which the authors have set for themselves, it throws an informative light upon the more important considerations which affect the survival of small-scale enterprise in the present competitive environment.

VICTOR ABRAMSON

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Gosudarstvennye Dokhody SSSR (Revenues of the USSR from State Sources). By A. K. SUCHKOV. (Moscow: Gosfinizdat. 1949. Pp. 192.)

This small volume in Russian is intended to serve as a textbook in Soviet schools for financial technicians. Its chief interest to the reader in the West lies in the fact that it affords a convenient and fairly rewarding glimpse of the Soviet cost-profit-tax-price structure as it emerged on January 1, 1949, after undergoing a most thorough and long-postponed overhaul. A literal translation of the Russian title—"State Revenues of the USSR"—would not be indicative of the contents, and the translation offered above is a weak compromise. The book actually attempts to cover those portions of the revenue of the Soviet treasury which are (proximately) paid in by the state-owned and co-operative enterprises. The chief of these is the well-known turnover tax, accounting for almost 60 per cent of all revenue in the consolidated[1] Soviet budget; also discussed are deductions from profits of state-owned enterprises, taxes on net income of co-operative enterprises (other than collective farms), receipts of machine-tractor-stations (which are on a gross basis in the budget), and various minor items of revenue. The chief taxes not discussed are those levied on incomes of individuals and on collective farms. A text[2] edited by the same author in 1945 covered the whole field of Soviet taxation.

The general economist might be interested to find in this book ample evidence of the high degree of *administrative* skill and precision developed by Soviet cost-profit-tax-price planners, and to reflect on the equally high degree of *economic* nonsense that much of this planning makes. Minutest aspects of the cost-price structure are covered by tax (and other) regulations, exceptions to regulations, and exceptions to these. But much of this effort seems to be directed toward preventing money prices from reflecting differentials in real

[1] *I.e.*, consolidated for all levels of government.

[2] A. K. Suchkov, ed., *Dokhody Gosudarstvennogo Biudzheta SSSR (Revenues of the State Budget of the USSR)*, (Moscow, Gosfinizdat, 1945).

cost. For instance, most commodities have uniform wholesale prices f.o.b. factory, either over all of the Soviet Union, or over broad zones, and regardless of the cost conditions of particular plants. Low-cost producers are sometimes subject to special taxes (*e.g.*, in the bread-baking industry, p. 82), but in any case, the state recaptures their profits. High-cost production is apparently occasionally still subsidized (*e.g.*, p. 88), although a much publicized purpose of the 1949 price overhaul was to eliminate subsidy payments. Average cost, and sometimes average cost for the industry as a whole, appears to be the chief determinant of the price to the factory.

Retail prices, incorporating high turnover taxes, are also uniform nationally or by zones. Thus, outright budgetary subsidies or partial exemptions from taxes are frequently granted to compensate for differences in costs of distribution, especially in the case of unfavorable locations (pp. 66-67). The Far North seems to continue to benefit particularly in this way.

The marginal calculus does not seem to have received any more recognition in the 1949 price reform than in the previous history of Soviet price administration. The opinion was recently ventured, apropos the 1949 price reform, that "the planning authorities in the Soviet Union have decided to make a fuller use of the price mechanism as an integral feature of their economic planning. Clearly, they have decided that while planning in terms of quantitative targets is essential, a functional use of the price mechanism is a necessary precondition to a sound and smoothly working economy."[3] If this is taken to mean only that by largely eliminating the dependence on huge subsidies (which were paid out to enterprises prior to 1949 because of sharply risen costs and outdated fixed prices), the new price structure gives managers an increased incentive for economizing in the use of resources within the rigid framework of their individual plans—then Kaser is quite right in maintaining that the new price structure represents an improvement. But if the above quotation is to be interpreted—as is suggested by the context of Kaser's article—to mean that Soviet planners have now made a concession to a "functional [resource allocating?] use of the price mechanism" (in the Lange-Lerner sense?), as against "planning in terms of quantitative targets," then neither Suchkov's book, nor any other Soviet source known to the reviewer, gives support to such a conclusion. Price administration is still far ahead of the economics of a price system.

Furthermore, the economist with special interest in the Soviet Union will also find in the book citations of some recent turnover tax rates which are still fantastically high by western notions (although they may have to be adjusted downward for the later reductions in consumers' goods prices) and he might draw inferences from these rates and from known retail prices with regard to cost conditions; indications of changes in methods of price calculation and of levying of turnover taxes associated with the 1949 price reform; and mention of new standard profit margins.

A final point: on the problem of whether prices paid by the armed forces

[3] M. C. Kaser, "Soviet Planning and the Price Mechanism," *Econ. Jour.*, Vol. LX, No 237 (March, 1950), p. 91.

do or do not include turnover taxes, recently raised in this *Review*,[4] the book explicitly states (pp. 81 and 92) that they do pay—now, at least—such taxes on grain and on products of the food industry, except on fruit and vegetables. No explicit statement is made with regard to industrial consumers' goods (textiles and their products, shoes) and petroleum products—the two other major commodity groups procured by the armed forces which are at present subject to turnover taxes—so that no conclusion can as yet be drawn with regard to these goods.

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[4] N. Jasny, "The Soviet Price System," *Am. Econ. Rev.*, Vol. XL, No. 5, Pt. 1. (December, 1950), p. 860.

International Economics

The United States and the Restoration of World Trade. By WILLIAM ADAMS BROWN, JR. (Washington: Brookings Institution. 1950. Pp. xii, 572. $5.00.)

Since the end of the United Nations Conference on Trade and Employment at Havana in March, 1948 a substantial literature has been produced on the Charter for an International Trade Organization (ITO) and its *alter ego*, the General Agreement on Tariffs and Trade (GATT). Mr. Brown's study lacks the detailed examination of specific aspects contained in some of this literature, but it is the most comprehensive description, analysis and appraisal of these two international agreements that can be found in a single volume. It reflects the author's intimate knowledge of the negotiations as an unofficial observer and his first-hand study of the voluminous official records. As the title indicates, the ITO and GATT are considered in the broader context of the question of restoring world trade; the study thus provides a thumbnail sketch of commercial policy during the interwar period as well as a consideration of such matters as the relationship of the agreements to the postwar intra-European trade and payments system.

The last 170 pages are devoted to a rearrangement and slight rephrasing of the provisions of the ITO Charter itself for the benefit of those with a "technical and professional" interest in it, including, presumably, those who may be responsible for its administration. The length and complexity of this rearrangement affords an insight into the tortuous negotiations which gave birth to the Charter and also into the mentality of governmental representatives who—apart from honest differences of opinion in matters of theory and policy—must negotiate such an agreement with full consideration for the impact of general principles on specific national institutions and policies.

After a circumspect review of pros and cons, Mr. Brown argues that none of the alternatives available would better serve the basic objective of United States commercial policy, which he conceives to the the re-establishment of a multilateral nondiscriminatory world trading system, than the entry into force of both the Charter (ITO) and the Agreement (GATT). For the

benefit of those who may be understandably unclear over the distinction between the two agreements, it should be stated that the content of the GATT is confined to the commercial policy provisions of the Charter—relating to such matters as the permissible use of quantitative import restrictions to safeguard the balance of payments, exceptions to the rule of nondiscrimination, customs procedure, and the coordination of exchange control policy under the Fund Agreement with commercial policy—and thus excludes the provisions of the Charter dealing with such matters as full employment, economic development, international investment, cartels, and intergovernmental commodity agreements. An integral part of the Agreement are the schedules of tariff concessions negotiated simultaneously among the signatories in accordance with the most-favoured-nation principle. As Brown points out, it is the official United States position that the GATT contains only those parts of the ITO Charter designed to protect the value of the tariff concessions included in the Agreement. In effect, the Agreement may be regarded as an instrument through which members of the ITO, if it were in existence, would discharge many of their obligations under the Charter, particularly those relating to entering into negotiations for the reduction of tariffs.

When Brown's study was being written, the United States government had not yet taken its decision to withdraw the ITO Charter from consideration in the face of an apathetic if not predominantly hostile attitude on the part of Congress. Envisaging this possibility, he expresses a preference for adherence to GATT as second best.

With the passage of time, the issue of ratifying the Charter as distinct from adhering to GATT appears to have become largely academic. So far as the Charter's full-employment provisions are concerned, it is doubtful whether the pledges contained in the Charter would have more force than the recent resolution of the Economic and Social Council of the United Nations urging governments to adopt specific measures to achieve and maintain full employment and to go on record as accepting a quantitative target of tolerable unemployment. Certain provisions relating to economic development, fought over doggedly and supported on the theory of maintaining a balance in the Charter, have been superseded by the activities of the Technical Assistance Administration of the United Nations, the International Bank, and other agencies. With the launching by the United States government of a campaign—thus far with limited results—to negotiate bilateral treaties for the protection of private foreign investments, a similar fate has befallen the Charter's provisions relating to the treatment of international investment, the vagueness of which provided a favorite target for the United States business community. Of the topics covered in the Charter but not in the Agreement, only intergovernmental commodity agreements and cartels have not been largely taken care of by other international arrangements, at least in the general terms characteristic of the Charter. At any rate, during the current period of shortages the commodity provisions must have a remote, if not hollow, sound. Finally, as any knowing bureaucrat might anticipate, the international agencies already in the field have found

reason to undertake most of the economic research and fact-gathering functions that might have come within the purview of the ITO.

Nevertheless, the commercial policy provisions of the Charter and the Agreement are, after all, the most important, and it is on these—and the related provisions of the International Monetary Fund Agreement—that the postwar structure of international commercial and monetary policy rests, however precariously. Even in this respect, however, it must be admitted that the current preoccupation with the international repercussions of inflation and physical shortages has temporarily driven from the center of the stage the concern over possible conflicts between domestic full employment and development policies and the attainment of balance-of-payments equilibrium under a regime of nondiscrimination.

Views about the crucial provisions of the Charter relating to nondiscrimination or, perhaps better, the permissible degree of discrimination, fall broadly into three groups. One school fears, with Messrs. Balogh and Henderson, that the Charter provisions or, at least, the way in which the provisions are likely to be administered would restrict unduly the scope of "legitimate" discrimination particularly during periods of deflationary pressure or in conditions of severe structural imbalance. A second group regards the Charter provisions, taken in conjunction with the "scarce currency" clause of the Fund Agreement, as sufficiently broad to permit a reasonable degree of discrimination both during and after the postwar "transition period." There is, finally, a third school which is so preoccupied with the advantages of nondiscrimination and multilateralism that it has failed to allay the suspicions and fears of the first school or to provide much underpinning for the position of the second.

Mr. Brown deals at several points with the immediate reasons underlying the resistance of countries during the postwar period to relaxation of discriminatory import restrictions. In fact, he argues that the acquiescence by the United States and Canada in the intensification of discrimination against dollar imports by the sterling area during the crisis of 1949 was an example of how the ITO provisions would have operated were the Charter in force. While this may be true, one could have wished for a fuller and more penetrating treatment in the book of the whole subject of discrimination. The failure of the contracting parties of GATT during their negotiations in the autumn of 1950 to reach agreement concerning the relaxation of discriminatory quantitative restrictions in the sterling area and the subsequent breakdown of negotiations for the reduction of tariff preferences within the sterling area offer evidence that serious divergencies exist in this sphere. Clarification of the issues is all the more desirable since the debate has not been exclusively between the professional economists on the one hand and the politicians and special interests on the other. This is somewhat glossed over in Mr. Brown's study, perhaps because he is mainly concerned with overcoming American criticisms of the Charter. At any rate, it would appear good tactics for those concerned with the real losses of excessive bilateralism to convince the opposition that they appreciate that properly controlled discrimination may, under some conditions, permit a greater or

more stable volume of international trade than rigid adherence to the basic rule of nondiscrimination.

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* The views expressed represent the personal opinions of the author.

The Dollar Shortage. By CHARLES P. KINDLEBERGER. (New York: John Wiley & Sons and The Technology Press of M.I.T. 1950. Pp. ix, 276. $4.00.)

Professor Kindleberger states in the preface that "the events of June 1950 in Korea have made even the title outdated." Fortunately, however, this harsh judgment does not apply to the main content of the book. The discussion of the concept of "dollar shortage," of American foreign trade and foreign investment, and of anti-shortage policies may indeed be of fleeting interest only. However, interwoven with that discussion emerges the outline of a highly original and important theory sketching the international aspects of economic development.

According to this theory, "equilibrium in the international balance of payments of a country depends upon its position in the evolutionary cycle and differs from static equilibrium where the current account . . . tends to equal zero." A "primitive undeveloped country" starts the cycle as a "young debtor which is borrowing at a rapid rate." It then becomes an "adult debtor which has a current account in balance." Still later, the country begins "repayment of old loans" as a "mature debtor," and emerges as a "young creditor" which extends loans to "young debtors." At the next stage it becomes an "adult creditor which neither lends nor accepts repayment on balance." Finally, the "mature creditor" exhausts its foreign investments by "accepting repayment of past loans from mature debtors." Having depleted its foreign capital, it becomes "economically senescent" and "may be regarded as eligible to start the growth cycle over again" (pp. 75-76 and 125-26).

The "transition between the various stages of the dynamic adjustment of a country appears to be brought about historically in large measure by war. . . . Aside from war, however, the evolution of the young creditor to the next stage of maturity will be brought about through the reduction of . . . relative rates of technological development. . . . The rise in incomes abroad produced by foreign investment and the impetus of the developmental process will narrow the gap until it closes" (pp. 78-79).

Cyclical fluctuations reinforce the tendency toward imbalance. The different positions of the various countries in the evolutionary cycle produce "tendencies toward secular stagnation and secular exhilaration," respectively; as a result, "some countries fail to adjust to deficits . . . whereas other countries fail to adjust to surpluses." These failures prevent the cyclical deficits and surpluses from being corrected according to the automatism of "Hume's law of trade"; it becomes therefore possible for a country to run

a surplus, and for another one to run a deficit, in times of both prosperity and depression (pp. 98-101).

Difficulties such as the "dollar shortage" are bound to arise if "a country whose current account acts like that of a young creditor" does not make sufficient international loans (p. 77). The answer to the question, however, why such difficulties did not arise until "the twentieth century regime of the dollar, . . . can at best be speculative" (p. 187). Professor Kindleberger stresses "the increased inelasticity of supply and demand which appears to characterize the world at present" (p. 191). In the United States, the rate of expansion is slowing down; in the rest of the world, the awareness of American standards of living makes it difficult to restrain consumption and stimulate capital formation. "With increased tendency toward disequilibrium, . . . the world has paid for its economic advance . . . through the loss of a quasi-automatic system of adjustment" (p. 188).

Professor Kindleberger has purposely neglected to verify his theory by historical analysis; he declares himself satisfied with producing "merely more hypotheses, unproved and in many cases probably unprovable because of being drawn up without regard for the idiosyncrasies of data" (p. 8). It is true that economic science is badly in need of new theories, even in the form of—provisionally—unproved hypotheses; eventually, however, any hypothesis will be discarded unless it is proved to be consistent with the data.

The problem arises, therefore, how such consistency can be proved or disproved. Professor Kindleberger states that since the end of the first World War the United States has been a "young creditor," and the United Kingdom a "mature creditor." It is not quite clear whether he does so only because the *balance of payments* of these countries conforms to his theoretical scheme or because the *general* economy of these countries gives the picture of "youth" and "maturity," respectively. If the theory is correct, it should be possible to correlate a country's *domestic* stage of development with its balance of *international* payments; but in order to do so, it would be necessary to define the various stages of development on the basis of criteria that are independent of the country's international position.

Two different criteria might be used for that purpose: the level of technological skill—as measured by per capita volume of capital or by per capita productivity of labor—which a country has reached, or the speed with which the acquisition of such skill is proceeding; in both cases, the factors might be measured either in absolute terms or in relation to the outside world. The first criterion seems inconsistent with the facts. The United Kingdom, prototype of the "mature" creditor country, has not reached a higher level of technological skill than the United States, prototype of the "young" creditor country. The second is insufficient if taken by itself. Technological progress in the United States may well be neither more nor less rapid at present when the United States is a creditor nation than it was fifty years ago when it was a "mature" debtor, or even a hundred years ago when it was a "young" debtor.

The best solution may therefore be a combination of the two criteria: the

difference between "young" and "mature" debtor and between debtor and "young" creditor nations may be based on the level of technological skill, with the rate of progress showing little variation; but the difference between "young" and "old" creditors may be based on the rate of progress irrespective of the level reached. The question arises, however, whether there is any necessary connection between the slowing down of the rate of progress and the achievement of a certain level. Professor Kindleberger's remarks about the reasons for the transition from "youth" to "maturity" seem to imply such a connection, somewhat in the line of the Ricardian concept of secular stagnation; but such an assumption would leave unexplained the fact that—whatever the present outlook for the U.S. economy—the United States certainly did not "mature" at the same level of technological skill as the United Kingdom.

It seems more likely, therefore, that the slowing down of the rate of progress is not simply the consequence of having reached a certain level of technological skill, but the result of factors less directly connected with technology; for instance, of factors involving social psychology, political institutions, or geographical position. If this is true, the "evolutionary cycle" would depend upon the entire complex of a country's social data, and would greatly vary from one country to another. In fact, "evolutionary cycles" might show even greater diversity than the traditional business cycles. This conclusion would be in agreement with Professor Kindleberger's general ideas which stress the close interrelation of the economic and non-economic aspects of social activity.

If Professor Kindleberger's theory is correct, international equilibrium presupposes strict international synchronization of economic development. A country can be a "young" debtor only if another country acts as a "young" creditor. Whenever the "young" debtor comes of age, another "primitive" country must take its place, or a "young" creditor country must in turn become "adult." Defects in synchronization would immediately lead to international disequilibrium.

In order to make this theory more than a mere tautology, it would not suffice to show that some country invariably starts or ceases to lend whenever another country starts or ceases to borrow. It should rather be shown that there is some mechanism coordinating the changes in debtor and creditor countries; for it would be nothing short of a miracle if it appeared that during all the centuries preceding the twentieth an almost perfect synchronization occurred by mere coincidence. In addition, it should be shown that this coordination was, at least in the past, inherent in the domestic development of the countries involved; for otherwise it would have happened frequently in the past—such as happened according to Professor Kindleberger in the United States during the 'thirties—that a country which had reached a certain stage of *domestic* development failed to act *internationally* according to the rules of that stage.

Two centuries ago, Hume showed that static equilibrium in the balance of international payments was reached—under certain conditions—by a

relatively simple automatism inherent in the market-price system. Similarly, it would now have to be shown that dynamic equilibrium could be reached —again under certain conditions—by some dynamic automatism. Once that automatism is analyzed, it would be possible to fit disequilibria such as the "dollar shortage" into the theoretical scheme by isolating the factors responsible for the presence and absence of the equilibrium conditions. In this connection, the world-wide switch from economic freedom to strict economic controls, administered by national governments on the basis of purely national considerations, might well play a decisive rôle.

Professor Kindleberger's theory is different from most or all recent theories of economic development in that it seems to leave no room for a change in the fundamental structure of economic society. It is not quite clear whether the author believes that technological forces are so strong as to make other social institutions seem unimportant in comparison, or whether he feels confident that the present organization of the Western world will prove more permanent than its critics assert.

In any case, the relations between domestic development and international balance pose as interesting and difficult problems in a centrally planned as in a market economy. The economic relations between the Soviet Union and its satellites might, for instance, be interpreted as those of a "young" creditor to "young" debtors. These relations are, however, obviously different from, say, the relations between the United States and Latin America. In fact, the very future of our society may depend upon the answer to the question of whether the Western or the Soviet system provides the better solution for the difficulties facing "young" debtors. A reasonable discussion of these questions requires, however, a clear understanding of the rôle played by economic development in the framework of the two competing systems.

Professor Kindleberger will be the first to concede that he has not yet provided a full-fledged solution to the riddle of economic evolution. However, his theory opens a vast new field for promising economic research.

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Survey of United States International Finance, 1949. By Gardner Patterson, with the cooperation of members of the Department of Economics and Social Institutions of Princeton University. (Princeton: Princeton University Press. 1950. Pp. x, 222. $1.75.)

The purpose of this experimental volume is to present in a discriminating, orderly and summary manner information on the activities, policies and programs of the United States which affected the general area of international finance during 1949. Major policies and programs starting from mid-1945, however, are treated adequately. Accordingly, the reader is given a survey of United States actions affecting the general field of international finance since the cessation of hostilities in Europe. The author has done exceptionally well in a very complicated and difficult area.

Broadly stated, the basic foreign policy of the United States has been to

foster economic, political and social freedom and stability throughout the world, although since 1948 this policy has been confined primarily to the non-Communist countries. In translating this broad objective into international finance and trade policies, the United States has advocated a multilateral non-discriminating world trade system; free convertibility of all currencies; reduction and, in some cases, elimination of trade barriers; and return of international finance to private enterprise.

The many programs to attain these objectives are reviewed in this volume. Important among those surveyed are (1) gifts and grants primarily through economic, relief and military programs such as the European Recovery Program, International Refugee and Children's Relief Program and the Mutual Defense Assistance Program; (2) public loans and investments through the Export-Import Bank, the International Bank and Monetary Fund and, in the case of Great Britain, the direct loan; (3) private loans and investments with reports on the Point Four Program, investment guaranties, tax adjustments and investment treaties; (4) exchange rate and gold policy with a review on the devaluation of overvalued currencies; (5) European economic integration with reports on the intra-European payments scheme and customs unions; and (6) United States import policy, including surveys on the Annecy Conference, the Havana Charter and purchases abroad for stockpiling.

In a brief but excellent concluding chapter (VIII), the author evaluates these and other programs. Careful, critical and fair analysis is made of United States aid programs and import policy, private investments, exchange rates, gold and foreign exchange reserves and European economic integration. The author concludes that for the year 1949 the record of achievement was very mixed and that in some cases it was too early to measure lasting results. He points out, for example, that the economic aid programs designed to increase productivity were offset, at least in part, by tying the gifts and loans to purchases in the United States. In other areas, *e.g.*, reduction of high tariffs, very little, if anything, was accomplished.

In determining the amount of economic aid, basic considerations have been the dollar exchange resources and the balance-of-payments positions of the recipient countries. Since the volume, too, emphasizes the balance-of-payments approach, a brief statement and evaluation of this approach as a tool of analysis and policy making would have been desirable. Although some of the descriptive materials and nearly all of the statistical data included are to be found in certain government publications,[1] the heart of this book is in the summarizations of legislative histories, basic issues and conflicts of interests, and in the critical comments of the author. It is hoped that in succeeding volumes such summaries and comments will be enlarged. The inclusion of a selected bibliography would have been helpful.

With perhaps one exception the author has reported on all the major

[1] See, for example, United States Department of Commerce, *The Balance of International Payments for the United States, 1946-48* (1950) pp. 275, and the March, June, September and December issues, each year, of the *Survey of Current Business*.

activities and programs. The exception is the freezing-unfreezing and vesting-divesting activities relating to foreign-owned assets which were in the United States at the outbreak of World War II. These wartime programs are still active. Although the amount involved (approximately $8 billion) and the impact of these programs on international finance are important, economists generally have neglected the field. In light of the creditor position and postwar aid programs of the United States and the dollar exchange shortages of the enemy countries (primarily Germany and Japan), the vesting of their relatively small amounts of prewar war assets appears incongruous. Failure of the United States to control foreign owned assets acquired after the cessation of hostilities contributed importantly to the flight of capital to this country.

Professor Patterson has an excellent understanding of the problems and materials in the field of international finance. The volume is cogently written, well organized and informative.

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* The reviewer is Secretary of the Office of Alien Property, Department of Justice; this Office administers the wartime controls over foreign assets. The views expressed in the penultimate paragraph are those of the reviewer and do not necessarily reflect those of the Department of Justice.

Le Système Monétaire de Bretton Woods et les Grands Problèmes de l'Après-Guerre. By ROBERT MOSSÉ. (Paris: Recueil Sirey. 1948. Pp. 153.)

The author says that his purpose is to present a clear exposition of the essential features of the International Monetary Fund and constructive suggestions for strengthening its position in the light of the actual problems of the world today. Part I describes the International Monetary Fund and Part II outlines the constructive suggestions. The book is not without certain good features but it falls short of the author's stated purpose.

The description in Part I does not give a clear picture of the essential features of the Fund. The description lapses frequently into a catalogueing of the Fund's weaknesses, which makes Part II repetitive. Much space is devoted to the history of the bargaining over quotas and voting power. Some of the more technical clauses are discussed quite superficially.

The long discussion of the Fund's objectives is unproductive. Mr. Mossé believes a major concern of the United States was to protect the position of gold and the U.S. dollar in the world, while the principal concern of the other countries was to obtain dollar credits. He thinks the objectives stated in the Fund agreement are vague and ill-chosen. Instead of aiming at monetary stability, eliminating exchange restrictions, and providing resources to members, the Fund should have aimed at providing an equilibrating "mechanism," the interconvertibility of all currencies, and helping to meet the problems of the transition period. The discussion seems to be a quibble over words, implying some degree of misunderstanding of the relation between equilibrium, exchange rate stability, and exchange restrictions. The author

points out, of course, that much larger resources would have been needed to finance the transition period deficits.

The section on the Fund's reserves says that the Fund Agreement (a) attaches too much importance to the distinction between strong and weak currencies, (b) forgets that weak currencies have purchasing power in terms of goods, (c) should permit automatic purchases of currencies from the Fund within quantitative limits, (d) should require the United States to replenish the Fund's supply of dollars, and (e) should not confuse the problem of the Fund's currency holdings with that of international disequilibrium. These points are discussed more fully in Part II. The first comment listed above is odd in the light of those that follow.

In the introduction to Part II, Mr. Mossé summarizes the Fund's early history. He thinks that the United States and the United Kingdom scorned the Fund in the 1947 sterling convertibility crisis, that France unwisely failed to agree with the Fund in its 1948 exchange rate change, and that in general the Great Powers have tended to negotiate important matters outside the Fund. This point appears to be well taken and of the utmost importance in considering the Fund's activities to date, probably much more important than its inability to meet the dollar deficits which developed. The tendency to negotiate outside the Fund appears to the general public to have reached its climax in the September, 1949 exchange rate adjustments (after Mossé's book was published), and continues to be reflected in the lack of any known tie-in of the Fund with the Marshall Plan and the intra-European payments system.

Mr. Mossé's chief concern, however, is with what he considers the failure of the agreement to tackle the problem of equilibrium. He says the Fund provides no mechanism for re-establishing equilibrium; use of the Fund's resources does not automatically lead to internal deflationary pressures, the provisions putting pressure on creditors are hopelessly weak, the agreement is too easy on debtors, and even changes in exchange rates are of limited usefulness in restoring equilibrium.

Mr. Mossé's recommendations for the Fund are as follows. First, it must recognize that it is destined to function in a world of continued fundamental disequilibrium and in which there are many closed and planned economies. The Fund's principal objectives must be the re-establishment of equilibrium, the interconvertibility of currencies, and provision of an international means of payment which can expand and contract to meet the world needs. To achieve these objectives, it must (a) sell currencies in large supply at depreciated rates or require the United States to buy them for "supplementary" purchases, (b) give support to regional payment systems, (c) reflect the balance of all international transactions, and (d) oblige creditors and debtors to take corrective measures. Mr. Mossé recognizes that to do all these things the Fund will need much larger resources.

These objectives are sound but seem to be substantially those of the Fund agreement. Admittedly, however, the Fund's resources do not permit any very great expansion of the international means of payment. Mr. Mossé's

specific suggestions as to how to achieve these objectives almost all imply that the Fund's resources can be greatly increased which seems quite unrealistic. There are other serious weaknesses from a practical point of view.

It is difficult to see how sales of weak currencies by the Fund at depreciated rates would accomplish anything that could not equally well be accomplished by a straightforward depreciation, or some multiple rate technique. And it is hardly conceivable that any country would permit such depreciation of its currency by the Fund without its approval. The United States would not commit itself in advance to purchase weak currencies, which would just be another way of putting more U.S. resources into the Fund. The feasibility of arranging for purchases which are really supplementary is open to grave doubts. Perhaps the least helpful suggestion is that the Fund should oblige debtors and creditors to take corrective action. As long as we live in a world of independent states we can try to persuade or induce a country to take corrective measures but we can not oblige it to do so. And the experience to date suggests that the member countries are not ready to even discuss with the Fund really vital problems, much less take its advice.

The idea that the Fund should have much larger resources is of course reminiscent of the Keynes plan. Undoubtedly with much larger resources the Fund could carry more weight if the big powers wished it to do so. All international transactions were to be reflected in the Clearing Union. Attractive as the plan was, there was never any possibility that the U.S. Congress would agree to make available up to $30 billion to an international monetary institution. The difficulties encountered in obtaining successive fiscal year appropriations for the Marshall Plan, even in the light of increasing political tension, and bolstered by exhaustive evidence of actual needs as they have developed, is ample proof of this fact. It seems quite clear today that the possibilities are even slimmer than ever.

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Industrial Organization and Markets; Public Regulation of Business

Investment, Location, and Size of Plant—a Realistic Inquiry into the Structure of British and American Industries. By P. SARGANT FLORENCE, assisted by W. BALDAMUS. Nat. Institute of Econ. and Soc. Research Econ. and Soc. Stud. No. 7. (New York: Macmillan. Cambridge: University Press. 1948. Pp. xiii, 211. $3.75.)

This imaginative analysis of the structure of industry has had a stimulating effect on research in this area in the past two and a half years. On the basis of extensive examination into industrial census statistics, the author has presented a number of significant measures of the inter-relationships between three of the significant aspects of industry: Size, Location, and Investment.

To measure the average size of plant in an industry, the author has determined in each case the so-called "prevailing size," that is, the modal group which accounts for half or more of the employees in the industry. In determin-

ing this typical size, the author has distributed plants among size groups which are progressively larger. For broad purposes of comparison, industries are classified in the main according to whether the prevailing size is small, medium, or large, with some use made of groups that are "smallish," and "largish."

As a measure of location pattern, the author uses an index of localization developed by him and extensively applied in the National Resources Planning Board study, *Industrial Location and National Policy*. This index compares the geographic distribution of one industry with that for industry as a whole. The computed indexes for 150 British industries are associated with the three major prevailing size groups. On the basis of simple contingency tables, the author reports a considerable relationship, but its significance seems to call for further analysis. With respect to the more localized industries, the plants tend to be of medium size. The explanation put forward by the author is that the plants in this group do not need to be smaller because transport costs do not require a scattering of plants throughout the market or among numerous materials sources, and they do not need to be larger because the production centers are big enough to yield the kind of economies obtainable within large plants.

Intensity of investment was measured, after trying other indexes, in terms of horsepower per worker. This would not appear to be a fully satisfactory measure since, as the author recognizes, the ratio between total capital investment and use of electric power varies widely among industries. The measure selected is in the main positively related among industries to the size of plant. The relationship does not apply, however, to industries which involve extensive weight-handling operations.

The author's conviction that these three characteristics of industry are closely inter-related is strengthened by a comparison of the operation of British and American industry. There are, however, questions which arise in connection with the determination of the typical size for an industry. These concern the homogeneity of operations among plants included in an industry, the dispersion of units about the modal group, the variations in size of plant in relation to the size of market served, and the variation in size according to the age of the firm. With respect to the first, the author surprisingly suggests that the homogeneity of industry be tested in terms of whether the intensity of investment is reasonably regular throughout the size classes, rather than in terms of similiarity of products. With respect to the second question, the collaborator presents an interesting chart which indicates clearly that within industries the intensity of investment, *i.e.*, horsepower per worker, varies considerably with size of plant.

The latter part of the study is concerned with the danger of industry's tending toward large-scale operation and larger firms. In this connection, the author recommends that public policy try to protect labor and consumers against monopoly which may develop where increased mechanization leads to large-scale operations, to greater efficiency, and finally, to monopoly. This is only suggested, since the author realizes that many other measures of efficiency and explanations of monopoly are necessary.

With respect to the encouragement of industrial dispersion, particularly of small units in small cities and towns, the author points out the inter-industry relations presented here make such dispersion difficult. Thus, he notes that industrial concentration consisting either of a cluster of smaller plants or of one or more large plants is likely to develop, unless the operation because of transportation costs is "oriented to," or tied to, local sections of the market or to scattered sources of materials. In some industries which tend to concentrate, the problem may be one of segregating those operations which can be dispersed, particularly if there are adjustments in regional freight differentials for moving semi-furnished materials as compared with those for moving raw materials. Although there are difficulties in influencing the geographic structure of industry, the relationships described require further analysis. Undoubtedly, there are many exceptions, and they should be examined in greater detail. Not only is there considerable variation from the general size-location relationship described in this study, but more specifically from the indicated degree of localization characteristic of medium-size plants.

The author has done an excellent service to industrial economists in presenting the relationships included in this book, and in supplying a mass of statistical information about the British as well as the American economy.

GLENN E. MCLAUGHLIN

Washington, D.C.

Economics of National Security. Edited by GEORGE A. LINCOLN, WILLIAM S. STONE and THOMAS H. HARVEY. (New York: Prentice-Hall. Pp. 601. 1950. $5.00.)

The *Economics of National Security* is the joint product of the members of the department of social sciences of the United States Military Academy. The authors do not attempt to make an exhaustive analysis of the economic, political or administrative problems of a defense or war economy and are not critically inclined. They have attempted, rather, to make a comprehensive survey of the experience of World War II, of World War I when relevant, and to provide a factual background which might serve as an introduction for a more detailed analysis of the many specific issues involved. This book is useful as a text for the uninitiated, not as a treatise for the professional economist.

In twelve chapters of somewhat uneven length the major issues are separately treated. Starting with an introductory chapter on the economic basis of national security the authors continue with successive chapters on the rôle and powers of the federal government; manpower; raw materials; industrial mobilization; transportation, communications and power; procurement policy; war finance; stabilization policy; the budget process; economic warfare and foreign aid programs; and finally a chapter on the outlook for the future. The legislative and administrative framework within which economic controls must operate is described in detail and carried down to the middle of 1950. Developments since the declaration of a national emergency and the passage of the Defense Production Act are not included because of the publication date, although the terms of the Act itself are included in an appendix.

This book has the disadvantage of any largely descriptive work; it does not stimulate much thought about the choices before us or the long-run implica-

tions of alternate policies. The failure of the authors to focus more sharply on the difficult problems of integration of the many separate elements of the economy and control system is a source of disappointment to one who has been recently frustrated by the failure of the current stabilization program to progress more favorably. Although the editors have been successful in eliminating many of the irritating features of a joint writing effort and have achieved a uniform style, they have not achieved an equally successful integration of the various chapters.

In view of the possibility that a partial mobilization may be necessary for some period of time, it is to be regretted that the authors, like most writers in the field, focus upon the economics of full-scale war rather than the less clearly defined state we are now in. The problems of policy formulation in the current situation are infinitely more complex and difficult than those of total war although the limitations of capacity to meet the demands of a material nature may be much less. For example, the determination of the extent to which basic industrial power should be expanded at the cost of immediate military end-product output, the question of stockpiling, the problem of international allocation of scarce materials, and the problem of price and wage controls are all more difficult to resolve and are more vigorously debated in a state of partial war than in the event of a struggle for survival. The political and administrative institutions which we wish to protect are also subject to strain and stress under current conditions and seem often to be poorly designed to cope with the problems which confront us. The authors have largely neglected this whole area although they are willing to recognize that the process of government administration of defense is fully as important as the pure economics of defense. If the cold war continues for some years, it is this type of problem which will be before us increasingly and may in the end spell the difference between victory and defeat. We are in grave danger if the deterioration of economic controls results in the breakdown of confidence in government with the possibility of serious consequences to morale, production, and the internal strength of the nation.

Special recognition should be given to the fact that the authors have maintained a high degree of objectivity and have not made any obvious concessions to the military organizations to which they are connected. If anything, this book leans over backward to stress the importance of the industrial backing necessary for the effective support of the men, ships and planes at the front. In view of the vast field they have chosen to cover this book is a commendable accomplishment and deserves respectful attention in spite of some of the limitations mentioned above.

PAUL J. STRAYER

Princeton University

Public Utilities; Transportation; Communications

Commercial Motor Transportation. By CHARLES A. TAFF. (Chicago: Richard D. Irwin. 1950. Pp. x, 413. $6.00; college ed., $5.00.)

Charles A. Taff has ended the "Era of Neglect" of the motor carrier industry in the realm of economic and business literature. *Commercial Motor*

Transportation represents the first attempt at a comprehensive treatment, with the possible exceptions of F. K. Edward's *Principles of Motor Transportation* (1933) and the Association of American Railroad's *Highway Motor Transportation* (1945). The paucity of writing on motor carrier operation is partly attributable to the fact that students of transportation have been preoccupied with railroad problems and the glamour of airlines. Commercial motor operations persistently and unostentatiously forged ahead. Leaders of companies were too busy expanding to call attention to their progress in articles and books. Hence, the industry rose to huge proportions without being recognized by more than a couple chapters in books on principles of transportation.

Professor Taff's textbook involved extensive research. He had a difficult task of compilation in this pioneering effort. He missed nothing in the trade journals down to the date of reading page proof. The effort to be current and comprehensive frequently conflicted with the logic of the outline. Material is included more because it was published recently than because a worthwhile addition to knowledge was made. This weakness is understandable in an initial survey such as Taff has written from unequal source material—thus, second editions or books by others.

Another edition might analyze at some length why the railroad rate structure was so susceptible to truck competition. The issue is not to be understood by differences in costs or service so much as by understanding the obsolescence of the assumption of monopoly still inherent in rail classification. Transport coordination is wholly ignored.

The chapter dealing with the "Economics of Motor Transportation" reflects the confusion which prevails among transportation economists regarding the meaning of joint, variable, out-of-pocket and constant costs. Use of the term "marginal costs" or its counterpart in accounting terminology "differential costs" would have clarified the presentation. Transition from the theoretical chapter on demand and costs into the rate structure of the industry is somewhat incomplete.

The book is written cautiously which is perhaps how textbooks should be written. But this approach does not warrant avoidance of controversial issues or undue use of pious hopes. The chapter on Restrictions on Interstate Movement of Goods devotes pages to variations in state laws regarding weight limits but says nothing about why the limits vary, the actual effect on highways and taxpayers, the effect on motor carriers' operation, or how to achieve the uniformity which various groups want. The author describes urban transit companies but ignores their financial plight.

Taff supports the Interstate Commerce Commission in its reliance on the operating ratios in preference to rate of return in rate cases. He writes, "To allow a motor carrier only a fair rate of return on its investment is not adequate for the amount of risk involved in the proportionately larger amount of operating expenses incurred" (p. 111). Reform logically should lie in a higher rate of return to be considered "fair" rather than resort to the operating ratio.

The failure to be more analytical does not impair usefulness as a text. The factual material is complete and, after all, the professor ought to have some function to perform. Excellent illustrations and pleasing format add to the merit of the book. *Commercial Motor Transportation* will facilitate and enhance courses in Motor Carrier Transportation.

L. L. WATERS

Indiana University

Railroads Down the Valleys. By RANDALL V. MILLS. (Palo Alto: Pacific Books. 1950. Pp. ix, 151. $3.50.)

The literature on railroad development has been expanding rapidly in recent years. While the emphasis has been on the major roads, several volumes have dealt with smaller railroads and the special problems accompanying their growth and operation. The latest of these presents the history of five short-line roads in Oregon.

These roads suffered the difficulties common to similar lines elsewhere—inadequate capital to complete plans and insufficient traffic for low-cost operation. But the dependence of the Oregon lines upon lumber—while subjecting them to severe cyclical fluctuations in traffic—has provided a more satisfactory economic base than the mining upon which so many short lines have relied for their traffic.

Two of the roads are of particular general interest. The Oregon Pacific was started in 1872 as a major transcontinental link, to connect the Union Pacific in Eastern Oregon with Yaquina Bay, with the plan of making Yaquina the major harbor instead of Portland, and Corvallis the metropolis of the state. But with a route far inferior to that along the Columbia river, with inadequate financial backing and local traffic, and with serious mismanagement, the road struggled along for years without being able to complete its line over the Cascades, and eventually passed into the hands of the Southern Pacific as a minor feeder.

The City of Prineville Railway is one of the extremely few municipally operated intercity railroads in the country. Prineville, pioneer trading center of central Oregon, was by-passed by the lines built into this area around 1900 and saw its business taken over by the new town of Bend. Unable to interest private capital in a branch into the town, the latter finally succeeded in building its own line. But Bend's lead was not easily overcome, and trucking seriously reduced traffic. After long years of losses, increased lumber and wool production placed the road back on its feet, justified the investment, and provided the city with a substantial source of income.

In general, Professor Mills' book is a well-written contribution to the history of the railroads and economic development of the Northwest. It, however, contains little technical data on corporate history, traffic, or earnings.

JOHN F. DUE

University of Illinois

Land Economics; Agricultural Economics; Economic Geography

Future Food and Agriculture Policy: A Program for the Next Ten Years. By JOHN DONALD BLACK and MAXINE ENLOW KIEFER. (New York: McGraw-Hill. 1948. Pp. viii, 348. $4.25.)

The focal point of this book is Chapter 21. Here Black and Kiefer outline "A Program for the Next Ten Years." The remaining materials are designed to lead up to and lead away from this major attempt at policy formulation.

What can be said about the Black-Kiefer proposals? In general terms, they present a well integrated and comprehensive set of proposals, as the name of the book implies. Their over-all objective is that of adjusting production to consumption and consumption to production. Traditionally we rely on price (or prices) to accomplish this integrating job. And these food planners, too, would rely on the market to accomplish much of this work of integration, but they feel that the market has serious shortcomings in food and agriculture. Hence, they would formulate and place in operation a set of programs to help the market adjust consumption to production and production to consumption.

Specifically, they would give up production control on individual farms. In its place they would institute "farm and home planning." Through the vehicle of "farm and home planning," involving the technical and financial assistance of numerous agencies of government, Black and Kiefer hope to facilitate needed production-adjustments in agriculture. They would also place in operation consumption-adjustment programs—programs designed to insure more adequate diets such as school lunches, inplant feeding and stamp plans. Without going into the mechanics of the proposal, the authors present a neat device for lowering the level of price support as surpluses accumulate.

Two related themes are developed in the long build-up to Chapter 21: (1) the food consumption-production balance in the United States and (2) the food situation in foreign countries or areas. The first of these themes is developed in comprehensive and compelling manner. The second is developed in a superficial and unsatisfactory way. The authors develop, as fully as one would want in a general discussion, the food consumption requirements of the United States as determined by such factors as population size and growth, nutritional adequacy, and personal incomes. And these requirements are compared with past and potential production to obtain a measure of the food problem in the United States. This analysis is conducted in a planning sense (in terms of absolute amounts required and forthcoming) rather than in an economic sense (in terms of functional relationships).

The pages that follow the key programming chapter are concerned primarily with the execution of the authors' proposals. They point out that "much effort went into the preparation of this part of the study." And a reading of this section confirms that statement. Nonetheless, these closing chapters come as anti-climax. The nature of the food problem has been developed in full. And the authors have already told us what ought to be done. Hence, the further discussion of the rôle of the producer, the consumer, the distributor and governmental agencies is not likely to hold the interest of the average or casual reader.

There is another problem in this connection. It is difficult to write in a realistic fashion on the mechanics or execution of a proposed policy. A policy proposal must take the form of a statement *of what ought to be;* it is not a description of what is. And we know that policy rarely jumps full blown from the brain of one man (or co-authors); it emerges through conflict and compromise and often takes a form not recognizable to the initiators of that policy. Consequently, a detailed discussion of the mechanics or execution of a proposed line of action takes on a certain quality of unrealness.

With all due respect to Mrs. Kiefer who contributed importantly to the analysis of the food problem, we must recognize that the policy recommendations of this volume represent in large measure the reasoned conclusions of one man—John D. Black. The "program for the next ten years" represents the mature judgment of the dean of agricultural economists. That in itself should, and will, command the attention of workers in the field of food and agriculture. But more important, that rare combination of political acumen and economic analysis which are brought together in the person of Professor Black has produced a series of policy recommendations which, if adopted, would lead to better nutrition and better resource allocation *and which also, have some chance of political acceptance.*

WILLARD W. COCHRANE

The Pennsylvania State College

The Rural Economy of New England. By JOHN DONALD BLACK. (Cambridge: Harvard University Press. 1950. Pp. xxiv, 789. $7.50.)

This study was begun some twenty years ago. In the dedication, which is to the late Professor I. G. Davis of Connecticut State College (now University of Connecticut), the author refers to Professor Davis's lifetime effort to understand the economy of New England, and to his pioneer work in developing methods of analysis suited to that purpose. Many of these have been used in the present volume.

The study is, as the author well states, a group product. Not only have many of Professor Black's immediate assistants and associates participated in the assembling of data for it but, in addition, it reflects the interest and cooperation of the six New England agricultural experiment stations, and various federal agencies, in their concerted effort to coordinate and improve the research program for New England, which began to take shape just prior to 1930. It is in fact almost a compendium of conclusions they have arrived at on the basis of more than sixty years of research dealing with soils, production organization, marketing, transportation and similar problems.

The volume here presented is to some extent unique, and quite different from most of the earlier writings by the same author. It is primarily a "fact" book rather than an analytical study, though this characterization does it less than justice. Certainly it contains much that has analytical content, though of a different kind from that which has characterized the author's earlier books. Also he takes more account of historical change than he has been accustomed to do in other writings.

It is not easy to indicate the content and nature of the book in a brief re-

view, and certainly it does not lend itself to critical appraisal. The facts are there. If they are the facts the reader wants, there is little occasion for disagreement. If they are not what he wants, this is not the place to look for them. In other words, this is largely a reference book designed to provide a background and foundation for other studies rather than a book which presents some central theme leading to conclusions that are oriented to some particular point of view.

The final chapter, No. 36, on "Regional Policy and Program" is to some extent a deviation from that pattern. It deals, though quite briefly, with what to do about it. The general line of thought is much more fully developed in the same author's recent book *Future Food and Agriculture Policy* (with Maxine Kiefer). In both books there is considerable emphasis on planned action; a receptive attitude toward rather substantial participation in such activities by federal, state and county governmental agencies. In this respect the author is less fearful of what many would call paternalism than are many of his colleagues in the profession. In fact he is quite prepared to welcome a fairly large amount of guidance and control from government agencies and officials provided they are oriented to the right objectives, efficiently executed, and responsive to the wishes of the people for whom they are designed.

But the above comments overstress the content of the brief concluding chapter. The bulk of the volume, more than 700 pages, consists of a vast array of factual information on the current situation and historical trends, interspersed with relatively brief analytical paragraphs and sections. Chapter headings include such things as the following: What is New England; Natural Endowments; The People of New England; The Industry of New England; Trade and Transportation; Land Use History; Ownership of the Land; The Soils; and many others.

While there is a vast amount of factual and descriptive treatment of these many phases of the New England economy, it would be incorrect to characterize the book as a whole as "descriptive" unless that term is used with broader meaning than is usually attributed to it. Virtually every chapter contains in addition a substantial amount of explanation of the meaning of the data.

As a whole *The Rural Economy of New England* should provide an extremely valuable foundation for research programs in New England, not alone in agricultural economics but in many other lines as well. In addition, it provides a pilot study in the way of a new approach to regional studies that will undoubtedly be read with interest by many students in other regions.

MURRAY R. BENEDICT
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Land Problems and Policies. Edited by JOHN F. TIMMONS and WILLIAM G. MURRAY. (Ames: Iowa State College Press. 1950. Pp. vii, 298.)

Not since the Conservation Movement of Theodore Roosevelt took on the proportions of a crusade has conservation of land and related resources been

the subject of so much debate as in the past few years. Everyone, it seems, believes in conservation, and agrees that conservation is wise use. But there agreement ends. The core of disagreement is two questions: what is wise use? how can it be achieved? This book attempts to bring light to a subject which too often is treated only with heat. Clarification does not mean simplification, however; quite the contrary.

Land Problems and Policies is made up of papers delivered by specialists in one or another of the pertinent fields at a Land Economics Institute held at the University of Iowa in the summer of 1949, with lectures given in the Graduate School of the United States Department of Agriculture forming three additional chapters. Since there can be no discussion of land problems which ignores the interrelationship among all resources, chapters are devoted also to population, water, forests, and wildlife, and they and other resources are touched on elsewhere throughout the book. The growing emphasis on recreational use of land is recognized by a chapter on that subject. Because land policies themselves create problems, much space is devoted to considerations affecting policy and factors and objectives to be kept in mind when policies are under consideration.

Even when not befogged by the emotionalism which characterizes much thinking about land and other resources, determination of what constitutes wise use poses very difficult problems. There are too many complexities and unknowns involved, too many resources and too many people directly or indirectly affected by them, too many different resource-use situations to expect anything approaching agreement even among experts. Nor is wise use the only problem to be resolved in policy deliberations. Implementation of policy—the how and how much of regulation—poses greater obstacles.

As a whole, the book does not attempt to say what policy should be, although some of the contributors verge on special pleading. It was published in the hope of stimulating discussion of land problems and policies, particularly with reference to the United States, and provides ample material, including expressions of different approaches and views, upon which to base discussion. It will not, however, serve as a corrective to the recent spate of books and articles on man and his misuse of the resources at his disposal, which are chiefly notable for their sweeping assertions of what should be and blanket condemnation of whatever is. The subject matter is difficult and has been made more so for the serious general reader by over-use of economic terms by some of the contributors. Since thoughtful citizens are already thinking about and discussing land and resource problems, it might have been well to couch the book in language they could understand. As it stands, it should serve as a useful reference for land economists because it condenses and analyzes in one volume material usually found scattered among a number of works.

E. Louise Peffer

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Conservation of Natural Resources. Edited by GUY-HAROLD SMITH. (New York: John Wiley and Sons. 1950. Pp: xii, 552. $6.00.)

This book is a thorough revision of A. E. Parkins, J. R. Whitaker, (Editors) and Others, *Our Natural Resources and their Conservation*, first published in 1936, and revised in 1939. Professor Smith has replaced Professors Parkins and Whitaker as editor, and several new contributors have replaced those of the earlier editions, but the character of the book has not been greatly changed. Facts and figures have been brought up to date, and most of the chapters are excellently and interestingly written. The book is an important contribution to our literature on land economics and conservation. The price may seem a bit high, but the publishers have used a high grade of paper, and there are many maps, graphs, and excellent illustrations.

JOHN ISE

University of Kansas

Labor

Economics of Labor Relations. By FREDERIC MEYERS. (Chicago: Richard D. Irwin. 1951. Pp. xii, 435. Text ed., $5.00.)

The number of texts available for the introductory course in labor relations is reaching flood-tide proportions. All the more, therefore, must each new book justify itself as providing a fresh interpretation of familiar material or an incorporation of previously undigested data. It is on the basis of the former standard that Professor Meyers justifies his *Economics of Labor Relations*.

The approach which distinguishes this new text from its predecessors is its acceptance of the view that collective bargaining can be most fruitfully analyzed as a method of making business decisions arising in consequence of the employment relation. In the author's words, "The center of our problem is the making of decisions in the labor market and by labor institutions. The organization of this book was derived from the emphasis on the decision-making process."

The content of the book is organized broadly as follows. Professor Meyers first discusses the factors leading individuals to choose whether or not to enter the working force, and then the influences determining their specific choice of jobs. In both instances he has emphasized the noneconomic forces at work. "Our analysis in terms of gradual cultural change would suggest that the labor force might be expected to be quite insensitive to differences in levels of income and employment." "Undoubtedly some movement takes place, but if it is reluctant, unresponsive to classically assumed motivations, and planless in the setting of job differences, no degree of mobility will perform the purpose assigned to it by economic models."

Next, the characteristics of American employers are examined. The "typical American employer is a corporate employer, controlled by professional management relatively independently of ownership." Profitability is an important goal of such managements, but secondary to the objectives of continued independence, security and status of the managerial group itself. Thus at the

start the author emphasizes that the decision-making process in which he is centrally interested is dominated by noneconomic forces. We encounter once more the persisting and unfortunate dichotomy between economic theory, still largely resting on maximizing assumptions, and the specialized fields of study, like labor, which increasingly stress a broader social conditioning of behavior patterns. Meyers has forthrightly followed the latter course, drawing on recent studies to support his choice. While I find myself in basic agreement, I had the uneasy feeling in reading this book that society was being somewhat too freely shorn of those economic motivations which we have for so long been told were controlling.

There follows a rather sketchy discussion of individual bargaining, which leads into the subject of unions as decision-making institutions. A brief historical account of the rise of unionism in this country provides a basis for some significant generalizations about objectives, tactics, and patterns of growth. The succeeding chapter is given over to a discussion of characteristics of modern unionism, including an able presentation of the rôle of the local union, somewhat offset by an overbrief consideration of the national organization. Having thus been shown the parties to the decision-making process, we are next offered a nice description of the bargaining conference and some of the basic issues injected into it.

The author's approach leads him to regard labor legislation as social limitations on the bargaining process. First, there is legislation like the Norris-LaGuardia, Wagner, and Taft-Hartley Acts which affect the making of agreements. Here I would challenge the author's almost wholly negative position with respect to the Taft-Hartley Act, a position which overlooks the genuine problems to which certain provisions of that Act were—if not happily—addressed. A misinterpretation of the Act's limitation on the Board's discretion in defining the appropriate bargaining unit may suggest to some—though undoubtedly without warrant—that the author purposed to paint the 1947 legislation in a black light. Second, there are the so-called protective laws such as child labor, wage and hour, accident compensation, social insurance, which serve as a limitation on the content of collective agreements. The rôle of strikes, arbitration and grievance procedures in the resolution of disputes has a chapter to itself.

With the process thus described, we are next led to consider the workings of the process. The marginal productivity theory is offered by way of contrast to the author's vigorous position that wages cannot be considered in abstraction from the whole employment relationship. For my own part, I found this discussion on marginal productivity too brief to be convincing and clear—a consequence of the author's fear of "beating a dead horse." For example, his warning that "the student should be particularly aware of the internal inconsistencies of marginal productivity as a theory of employment" is preceded by only a one or two-sentence exposition of those alleged inconsistencies. There is then presented "at least the bold outlines of a framework of analysis which the author considers to be useful." This framework of analysis consists in the concurrent consideration of three elements applicable to both union

and management. The first is a "spectrum of demands," ranging from wants with strong welfare (economic) connotations at one end of the spectrum to those with strong power connotations at the other end. The concept of such a spectrum is joined by an analysis of the pressures lying upon the union and management, inducing the relative emphasis at one end of the spectrum or the other, and finally by consideration of their relative bargaining positions or strengths. "If one has an understanding of the relative values of demands at several positions in the respective spectra of the parties and the pressures that they are able to bring to bear to enforce their positions, some measure of predictability as to the results of bargaining is possible." This is a rather neat little framework of analysis for pedagogical or exploratory purposes, but the reference to its use for prediction endows it with a theoretical quality which is of course lacking.

Five chapters then describe the results of the process portrayed. In one Meyers examines the structure of annual earnings, hourly earnings, regional wage differences, wage differences by sex and race and between industries, ending with a somewhat inadequate examination of the evidence as to whether unions have influenced wages through collective bargaining. Trade union wage policy is discussed largely within the terms of the Berkeley group, as a consequence of political pressures within and between unions. The effects of changing wage rates are analyzed in the firm, in the market or industry, between industries, and in the economy at large. His conclusion is that, except for the firm in isolation, the effects of union wage actions are not identifiable. Supplementary wage practices are described, followed by a chapter detailing a variety of other provisions of collective agreements touching on the security of the individual and the union.

Skipping over the section on political activity, we conclude with three chapters that summarize and restate the major theme—that the employment relation under unionization introduces a new method of decision-making, namely, the collective bargaining process. The final chapter on public policy presents Professor Meyer's own convictions: "Our view of public policy is that it should serve to encourage the rapid extension of collective bargaining, leaving the parties as free as possible to make bargains within socially acceptable limits."

On the whole, this is a very teachable book and should be welcome to those who—as I do—conceive of collective bargaining as a method of making business decisions. In this respect it meets a need not heretofore supplied. There are a few drawbacks, to be sure, as in every book. At times the writing is uneven. A figure of speech (the "missionary" character of unionism) leads to a rather absurd interpretation of jurisdictional disputes on page 123. Some statements are stronger than the evidence warrants, and at times one has a feeling that there has been a "forced fit" of both fact and prediction to follow a predetermined plan, as, for example, when the Sherman Act is discussed as a restriction on the content of collective agreements, which it did not become until 1944, or when the Hutcheson case is made to appear as effective

protection against employer-union collusion. Such flaws are relatively minor, and I am sure that the book is one which most teachers of labor courses will examine with interest.

NEIL W. CHAMBERLAIN

Yale University

De Loonvorming in de Moderne Volkshuishouding. (Wage Determination in the Modern Economy). By J. PEN. (Leiden: H. E. Stenfert Kroese's Uitgevers-Maatschappij N. V. 1950. Pp. x, 322.)

Despite the impressive number of Ph.D.'s in economics who specialize in the field of labor, the field is not generally held in high esteem by those whose interests are primarily "theoretical." There are, of course, some notable exceptions who are struggling to isolate labor *economics* from labor *problems* and to escape from the tradition of institutionalism in this field—a tradition that *in extremis* almost denies that in economic theory there is anything useful or pertinent to labor's "problems." Dr. Pen's book on wage determination in the modern economy, subtitled a theory of collective bargaining, strengthens the position of the economic theorists in this area.

This short review note can only indicate the scope of Pen's contribution. A fuller account, by no means detailed enough, appears as a summary in English in the book itself. Briefly put, he suggests a theory of bargaining that explains the process by which the individual wage rate is agreed upon; or to quote from the summary, ". . . what factors determine the result of the wage bargains, given the ophelimity functions [union and employer preference schemes]?" It thus follows the course charted by Jevons and Edgeworth who saw wage rates as resulting from the interaction of isolated pairs rather than from the impersonal forces of the perfectly competitive market. In providing the background for the development of his theory, Pen treats the reader to a penetrating survey of the appropriate literature.

De Loonvorming . . . should be translated into English, for this will give the book the widespread critical attention it deserves and will insure that its readily acceptable features will be quickly incorporated into wage theory. Some of the remaining questionable aspects, then, will be subjected to the tests of controversy that have so often led to advances in economics.

WYTZE GORTER

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Readings in Labor Economics. By FRANCIS S. DOODY. (Cambridge: Addison-Wesley Press. 1950. Pp. viii, 481. $3.75.)

The recent appearance of books of readings in labor subjects is a sign that the labor field has attained at least the kind of respectability which is measured by volume of literature and the number and size of college courses. The present volume is small as books of readings go. It is designed to supplement a regular text and the price has been kept down by use of photographic reproduction methods.

The volume's modest size and the editor's decision to reproduce articles in full, only thirty-five articles in all, make the potential user very dependent upon the editor's selective judgment. His emphasis is on wage subjects. Fourteen articles deal with structural, productivity, employment, and public-policy aspects of wages. Three more articles cover forms of wage payment. These seventeen articles account for well over half the pages in the book. Five articles deal with aspects of social security. Little more than a fourth of the volume is left for such areas of the field as the non-wage aspects of labor relations, labor law, and unionism. In fact, the last two areas are virtually not covered at all. This choice of materials does not reflect the prevailing interests, needs, or capacities of the great majority of students this reviewer encounters in his classes.

A book of readings in labor unavoidably suffers from a rather high rate of obsolescence in these times of eventful change in the American labor scene and abundant new research output. In the present volume factual surveys of incentive, premium, sick leave, and vacation-pay practices suffer particularly from this difficulty. Even the summary report of the fact-finding board in the 1949 big steel dispute is beginning to seem ancient history. The impression of obsolescence is heightened because much significant recent research in wages and industrial relations is not represented and because eighteen of the thirty-five articles date from 1945 or earlier. For example, the most recent of the articles on wages and productivity was written in 1946. Horace Davis' article on the theory of union growth, the only article, incidentally, which even touches on the labor movement, was written in 1941. The principal articles on union wage policies were written in 1940, 1943, and 1945, respectively.

One can question some of the editor's selections on other grounds as well. Of the two articles on strikes, one is Dale Yoder's detailed but inconclusive statistical comparison of strike data with various indices of economic change. One of the articles on wages and employment is a study by Waldo Fisher of wage, hour, employment, and output changes in the soft coal industry from 1934 to 1937. The only analytical article on multi-employer bargaining is a discussion by David McCabe which is confined to the wage aspects of industry-wide systems. Each of these pieces has its own intrinsic merit as an academic inquiry but each lacks the general information or broad relevance which one looks for in books of this kind. These examples point up what is a serious and inherent shortcoming of all books of readings taken from academic journals. Journal articles are not written for students and especially not for the students who are most likely to inhabit large university classes for which books of readings are intended. They tend to be too technical, to deal with one facet of a problem rather than the problem as a whole, to be more specific or detailed than is necessary for the general student, and to be written in a style and language which do not make for student interest or readability.

As a final suggestion, it would add meaning to the readings if the authors were given brief identifications.

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Population; Social Welfare and Living Standards

The Population of India and Pakistan. By KINGSLEY DAVIS. (Princeton: Princeton University Press. 1951. Pp. xvi, 263. $7.50.)

This book by Kingsley Davis is the fifth of a series of studies on world population undertaken by the Office of Population Research of Princeton University. The first four volumes dealt with the population of Europe, and specific areas within it; and upon publication took their places as definitive works on their respective regions. This latest volume does the same for India and Pakistan, and is to be followed by Irene Taeuber's study of Japanese population.

Since Professor Davis is a sociologist rather than an economist, his book is essentially a social study rather than an economic study, and only two late chapters are devoted primarily to economics. But for India such a distinction between subjects, while valid otherwise, is not very meaningful in a study of potential economic and social development. Whereas in the West social problems or characteristics may often be treated as a constant in the short run in dealing with economic problems (especially since economic theory is based upon Western social concepts), for India this is difficult if not impossible. The problem of population—both size, potential growth, and composition—is a major variable, if not *the* major one, in any estimate of economic problems and future of the area. Furthermore, as already evidenced by prewar Japanese experience, social characteristics and attitudes will certainly color any program of economic development, and may seriously modify purely economic considerations. Professor Davis realizes this interrelationship, and constantly stresses the close connection between the social problems and their solution, and the economic problems.

The study of population problems proper, which comprises the first twenty chapters of the book, is a model of its type. The major subjects treated are: size of population and past history, the birth and death rates and their variations, estimates of future population growth, the problem of migration both external and internal, the growth and character of urban areas, levels of education and literacy, the caste system, and religion. In all of these fields this book will unquestionably be considered the best single American source of material for future students. But this section is far beyond a summation of existing statistics. It is also a detailed and careful critique of those statistics, and an imaginative treatment of the available statistics to develop whatever material may be present and to fill in the numerous gaps which exist. When this is finished it seems to this reviewer that there is little that can be added by a non-Indian.

Furthermore, Professor Davis never treats his material in an isolated fashion. Rather he constantly emphasizes the relationship between the social variables he is discussing and economic problems; and he stresses the difficulty, if not impossibility, of dealing with any one of the variables, such as the death rate, without also considering economic changes and their effects. He also touches briefly upon the effects of such social characteristics as caste, the attitudes toward the village, religion, etc. upon economic change. It would

be a most valuable contribution for economists to examine the influence of these social variables upon such economic factors as entrepreneurship, capital formation, labor migration and turnover; and to compare the results with Western experience.

The treatment of economics proper is restricted to the last two chapters and is primarily a brief summation, rather than a definitive study. While the reviewer in general agrees with the author's conclusions, certain critical comments are worth making. First, the discussion of overpopulation in no place cites, or seems to use, the numerous economic analyses of the problem of "optimum" population which might have been valuable. Second, Professor Davis considers heavy capital-using industry as more desirable than light industry. But he does not examine the fields in which India might have a comparative advantage, nor whether concentration in heavy industries might be less economical and therefore possibly less desirable, since India has a great supply of labor relative to capital or land. Thirdly, the treatment of overpopulation on the farm is not complete if it essentially states that the farm crop—or a larger one—can be produced by fewer workers and more capital; existing or potential economic alternatives to farm work should also be presented, and costs must be considered.

But these considerations apart, one can only conclude that Professor Davis' study is an indispensable addition to knowledge of the area, at the same time that it is a creative contribution to the study of social problems. And this review might well close by mentioning the ease of style which adds greatly to the readability of such a scholarly work.

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Unclassified

Social Science Research Methods. By WILSON GEE. (New York: Appleton-Century-Crofts. 1950. Pp. vii, 390. $4.00.)

Difficult indeed is the task of an author who attempts a critical presentation of the methods of the social sciences. The range of competence demanded for the task is only one of the hurdles to be surmounted. In the text under consideration, Wilson Gee has sought to meet the problem by assembling what amounts to a pastiche from authoritative writers in the several fields. In his preface he explains that "the extensive use of excerpts is made with deliberate design and of necessity. It is impossible for one person to speak with authority on so wide a range of intellectual concern as this book represents. Most of the value which this volume has resides in the selection and organization of authoritative, pertinent, and provocative materials."

The author has obviously devoted much labor to sifting the literature for these excerpts and fitting them into an inclusive structure. The result, however, seems to me hardly successful. The prospective social science student will be little more likely to interpret or devise research more intelligently for reading this book—if, indeed, he is not discouraged from any further contact

with what is likely to appear to him a dry, contentious, and unpromising business.

The book starts by considering the nature, scope, and current trends of social science and the several social sciences. A trio of chapters then deal with the meaning of research, scientific method, and the logical methods common to scientific thought. There follow chapters on widely employed technical methods: the case method, the statistical method, the experimental method, and the survey method. A final chapter treats social science research organization.

The excerpts embodied in the volume present a virtual time-capsule of the controversies, admonitions, and pronunciamentos that have bulked large in social scientists' talk about social science during the last thirty-odd years—with a disproportionately heavy weighting from the earlier portion of the period. The old controversies about the sense in which social science is or is not scientific, whether it should be normative or descriptive, whether it can or should seek prediction, etc., are all there. The author attempts to steer a judicious course among his authorities, in effect seeking to define the nature, common problems, and methods of the social sciences by consensus.

For an already sophisticated student, there may be some value in retracing some of the lines of contention that have led to the present concerns of the social sciences. Neither the neophyte—for whom the book is clearly intended—nor the sophisticate, however, will gain from the book much sense of the framework of assumptions and methodology underlying the recent burst of theoretically oriented research in at least several of the social sciences. Speaking as a social psychologist with some familiarity with current developments in sociology, anthropology, and political science, I hopefully believe that we are in the process of outgrowing the stage of discussion represented in this book. The task of identifying for the beginning student and for the specialist the assumptions and strategies that are proving fruitful as we go about our common business of research and theory-building still needs doing.

A word about the treatment of specific technical methods. Gee wisely restricts himself to broad categories of methods having a wide range of application, rather than attempting to treat more specialized techniques. Again, however, his use of excerpts from authorities precludes a sharp treatment of the underlying assumptions of an approach, the principal areas of application, and the major pitfalls besetting the researcher who relies on it—though most of these considerations are embedded in one way or another in his materials. Important recent work is not reflected in at least some of his discussion. For example, his treatment of interview and survey methods relies entirely on writings about the older social survey, and does not take into account the development of the modern sampling interview survey and its associated questioning techniques. His treatment of the experimental method, devoted mainly to second-best approximations that are hardly experiments at all in the stricter sense, does not do justice to the promise and feasibility of strict experimentation in the social sciences, as demonstrated only in recent years. No reference, thus, is made to the methods underlying the study of communica-

tion and group process by the followers of Kurt Lewin, "action-research" on existing programs of social change, or recent laboratory studies of economic behavior.

But perhaps a more fundamental question needs to be raised. How are we to make our graduate students competent producers and critics of research in their own social science, and potential collaborators with other social scientists? Not, I fear, from a deductive survey in which scientific method is considered in one chapter and particular techniques, divorced from application, are treated in succeeding ones. The only satisfactory substitute for experience in doing research, it seems to me, is the critical study of *cases* of actual reported research, in which methods are seen in context and their assumptions, consequences, and degree of appropriateness exposed for student evaluation. However valuable an abstract treatment of social science methodology might be as a summary of existing practice for the profession, its use as a text in graduate training would remain highly questionable.

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TITLES OF NEW BOOKS

Economic Theory; General Economics

BAGLEY, W. C., JR., and PERDEW, R. M. *Understanding economics.* (New York: Macmillan, 1951. Pp. viii, 535. $3.28.)
An illustrated textbook for use in secondary schools.

BLODGETT, R. H. *Principles of economics.* 3rd ed. (New York: Rinehart. 1951. Pp. xx, 698. $5.)

CONDLIFFE, J. B. *Technological progress and economic development.* Three lectures delivered in 1950-51. Delhi School of Econ. occas. paper no. 2. (Delhi: Ranjit Printers and Pubs. 1951. Pp. 62. $1.)

DIVISIA, F. *Exposés d'économique. I, Introduction générale—l'apport des ingénieurs français aux sciences économiques.* (Paris: Dunod. 1950. Pp. xii, 157.)

JAMES, C. L., in collaboration with CALDERWOOD, J. D. and QUANTIUS, F. W. *Economics—basic problems and analysis.* (New York: Prentice-Hall. 1951. Pp. xxiii, 611. $4.50.)

KAPP, K. W. and KAPP, L. L. *A graphic approach to economics: selected principles and problems.* (New York: Henry Holt and Co. 1951. Pp. xvii, 174. $1.90.)

KATONA, G. *Psychological analysis of economic behavior.* (New York: McGraw-Hill. 1951. Pp. ix, 347. $5.)

KIEKHOFER, W. H. *Economic principles, problems, and policies.* 4th ed. (New York: Appleton-Century-Crofts. 1951. Pp. xix, 957. $5.)

KOOPMANS, T. C., editor. *Activity analysis of production and allocation.* Cowles Commission monog. no. 13. (New York: John Wiley and Sons. 1951. Pp. xiv, 404. $4.50.)
Proceedings of a conference carried out under a research contract of the Cowles Commission with the RAND Corporation.

LERNER, A. P. *Economics of employment.* (New York: McGraw-Hill. 1951. Pp. xv, 397. $4.)

MITCHELL, B., MURAD, A., BERKOWITZ, M. and BAGLEY, W. C., in collaboration with HUTCHESON, H. M. and LEONARD, N. *Basic economics.* (New York: William Sloane Assoc. 1951. Pp. vi, 502. $3.75.)
Adapted for shorter courses from *Economics: Experience and Analysis* by the same four primary authors.

NIEHANS, J. *Ausgleichsgesetze der amerikanischen zahlungsbilanz—von der allgemeinen preistheorie zur quantitativen voraussage.* (Bern: A. Francke. 1951. Pp. x, 173. Sw. fr. 9.50.)

PHELPS BROWN, E. H. *A course in applied economics.* (London: Sir Isaac Pitman and Sons Ltd. New York distributor, British Book Centre. 1951. Pp. viii, 434. $5.75.)

SCHLATTER, R. B. *Private property.* (New Brunswick: Rutgers Univ. Press. 1951. Pp. 284. $2.50.)

SCHUMPETER, J. A. *Imperialism and social classes.* (New York: Augustus M. Kelley, Inc. 1951. Pp. xxv, 221. $3.)
A volume, edited by and with an introduction by Paul M. Sweezy, containing two essays "The Sociology of Imperialisms" and "Social Classes in an Ethically Homogenous Environment." The essays, originally published in German between the two world wars, have been translated by Heinz Norden.

———. *Ten great economists—from Marx to Keynes.* (New York: Oxford Univ. Press. 1951. Pp. xiv, 305. $4.75.)

With the exception of the essay on Marx, these essays were written in the period from 1910 to 1950 and appeared in various economic journals.

Spiegel, H. W. *Introduction to economics.* (Philadelphia: Blakiston. 1951. Pp. 605. $5.)

Weber, M. *Gesammelte aufsätze zur wissenschaftslehre.* 2nd enlarged edition collected by Johannes Winckelmann. (Tübingen: Verlag J. C. B. Mohr (Paul Siebeck). 1951. Pp. 688. DM 37, 80.)

Wilson, T. and Andrews, P. W. S., editors. *Oxford studies in the price mechanism.* (New York: Oxford Univ. Press. 1951. Pp. xv, 274. $4.25.)

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Arcila Farias, E. *Comercio entre Venezuela y Mexico en los siglos XVI y XVII.* (Mexico, D. F.: Fondo de Cultura Economia, for El Colegio de Mexico. 1950. Pp. 324.)

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Delavignette, R. *Freedom and authority in French West Africa.* (New York: Oxford Univ. Press, for the International African Inst. 1950. Pp. vii, 152.

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Kirkland, E. C. *A history of American economic life.* 3rd ed. (New York: Appleton-Century-Crofts. 1951. Pp. xii, 740. $5.)

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Lacour-Gayet, J., editor. *Histoire de commerce.* Vol. I, *La terre et les hommes:* I, *La géographie et le commerce,* by A. Journaux; II, *Les hommes,* by P. Benaerts; III, *Les formes d'exploitation,* by M. David; IV, *Bibliographie générale,* by A. Gobert. Vol. II, *Le commerce de l'ancien monde jusqu'à la fin du XVe siècle:* I, *Le commerce antique jusqu'aux invasions arabes,* by M. Lemosse; II, *Le commerce médiéval Européen,* by M. Boulet. (Paris: SPID. 1950. Pp. xxiii, 373; 357.)

First volumes of a series of five to be published.

Martinez, J. F. *Economic developments in Brazil, 1949-1950.* Also in Spanish. (Washington: Pan American Union. 1950. Pp. 69. 50c.)

Morgenthau, H. J. *Germany and the future of Europe.* (Chicago: Univ of Chicago Press. 1951. Pp. viii, 180. $3.50.)

A presentation of the fourteen lectures of the Twenty-sixth Institute of the Norman Wait Harris Foundation of the University of Chicago held in the spring of 1950. Four lectures are on economic topics.

Schwartz, H. *Russia's soviet economy.* (New York: Prentice-Hall. 1950. Pp. xxvi, 592. $5.)

Shannon, F. A. *America's economic growth.* 3rd ed. First ed. entitled *Economic history of the people of the United States.* (New York: Macmillan. 1951. Pp. x, 967. $6.)

Smith, T. L. and Marchant, A. editors. *Brazil—portrait of half a continent.* (New York: Dryden Press. 1951. Pp. xiv, 466. $5.75.)

Sovani, N. V. *Planning of post-war economic development in India.* Gokhale Inst. of Pol. and Econ. pub. no. 22. Published in co-operation with the Internat. Secretariat, Inst. of Pacific Relations. (Poona: D. R. Gadgil, Gokhale Inst. of Pol. and Econ. 1951. Pp. 106. Rs. 3-8-0 or 5 *s*.)

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Report on foreign trade. Prepared by the U. S. Econ. Survey Mission to the Philippines. (Washington: Dept. of State. 1950. Pp. 21.)

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Economic Systems; Planning and Reform; Cooperation

Abels, J. *The welfare state; a mortgage on America's future.* With foreword by R. Moley. (New York: Duell, Sloan and Pearce. 1951. Pp. 226. $3.)

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In the epilogue Professor Mises comments upon the totalitarian developments of recent decades, and adds new warnings of the dangers inherent in the socialistic trend.

National Income and Social Accounting

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Hartley, R. W. and others. *America's capital requirements; estimates for 1946-1960.* (New York: Twentieth Century Fund. 1950. Pp. 262. $3.)

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Business Fluctuations; Prices

MITCHELL, W. C. *What happens during business cycles—a progress report.* Stud. in bus. cycles no. 5. (New York: Nat. Bur. of Econ. Research. 1951. Pp. xxxi, 386. $5.)

SLICHTER, S. H. *What's ahead for American business.* (Boston: Little, Brown. 1951. Pp. 216. $2.75.)

Control of capital goods prices. A statement of Machinery and Allied Products Inst. presented by George Terborgh before the Senate Committee on Banking and Currency, June 5, 1951. (Chicago: Machinery and Allied Products Inst. 1951. Pp. 31.)

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Lasser, J. K. *What you should know about estate and gift taxes.* (New York: Henry Holt. 1951. Pp. 175. $2.95.)

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An emergency tax program for 1951. A statement on national policy by the C.E.D. Research and Policy Committee. (New York: Committee for Econ. Development. 1951. Pp. 31.)

Explanatory memorandum on the budget for 1951-52, Apr. 1, 1951 to Mar. 31, 1952. By the Financial Secretary. (Hyderabad: Govt. Press. 1951. Pp. 51.)

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Income tax regulations III. (Chicago: Commerce Clearing House. 1950. Pp. 598. $3.)

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Revenue revision of 1951. Hearings before the House Committee on Ways and Means, 82nd Cong., 1st sess. Pts. 2 and 3. (Washington: Supt. Docs. 1951.)

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Standard Communist fare about the death throes of an expiring capitalism, in which "War economy . . . becomes the essential, continuing feature of regulated capitalism."

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NOTES

SIXTY-FOURTH ANNUAL MEETING OF THE AMERICAN ECONOMIC ASSOCIATION

Hotel Statler, Boston, Massachusetts, December 26-29, 1951

Preliminary Announcement of the Program

Wednesday, December 26

12:00 M. *Luncheon Meeting of the Executive Committee*

2:30 P.M. INTERNATIONAL TRADE THEORY

Chairman: R. B. BRYCE, Department of Finance, Ottawa, Canada

Papers: The Present State of the Theory of International Values
JACOB VINER, Princeton University
Title to be announced.
ARTHUR SMITHIES, Harvard University

Discussion: G. A. ELLIOTT, University of Toronto
J. J. POLAK, International Monetary Fund

AGRICULTURE DURING REARMAMENT: Joint session with American Farm Economic Association

Chairman: THEODORE W. SCHULTZ, University of Chicago

Papers: Appraising the Demand for American Agricultural Output
ELMER J. WORKING, University of Illinois
American Agricultural Policy During Rearmament
KARL BRANDT, Food Research Institute

Discussion: WILLIAM H. NICHOLLS, Vanderbilt University
KENNETH H. PARSONS, University of Wisconsin

8:00 P.M. AMERICAN FOREIGN AID PROGRAMS

Chairman: HOWARD S. ELLIS, University of California

Papers: European Recovery and the Problems Ahead
RICHARD M. BISSELL, JR., Massachusetts Institute of Technology
Raw Materials, Rearmament, and Economic Development
EDWARD S. MASON, Harvard University

Discussion: DON D. HUMPHREY, Duke University
WALTER S. SALANT, Council of Economic Advisers

GOVERNMENTAL POLICY ON BUSINESS PRACTICES

Chairman: THEODORE J. KREPS, Stanford University

Papers: Anti-Trust Policy During Rearmament
CORWIN D. EDWARDS, Federal Trade Commission
Government Aid to Business Expansion
EDWARD C. WELSH, Reconstruction Finance Corporation

Discussion: MELVIN DE CHAZEAU, Cornell University
KERMIT GORDON, Williams College

Thursday, December 27

9:30 A.M. ECONOMIC THEORY AND PUBLIC POLICY

Chairman: JOHN M. CLARK, Columbia University

Papers: The Future of Economic Liberalism
OVERTON H. TAYLOR, Harvard University
An Historian's Perspective on Modern Economic Theory
W. W. ROSTOW, Massachusetts Institute of Technology

Discussion: VINCENT W. BLADEN, University of Toronto
PAUL T. HOMAN, University of California at Los Angeles

ECONOMIC PROBLEMS OF MILITARY MOBILIZATION

Chairman: DONALD H. WALLACE, Princeton University

Papers: The Planning of Military Requirements
COL. GEORGE A. LINCOLN, United States Military Academy
Procurement Policies—World War II and Today
JOHN PERRY MILLER, Yale University

Discussion: HARRY E. HOWELL, New York City
J. PHILIP WERNETTE, University of Michigan

REGIONAL ECONOMICS: Round table joint session with the Econometric Society

Chairman: CALVIN B. HOOVER, Duke University

Paper: Title to be announced
RUTLEDGE VINING, University of Virginia

Discussion: MORRIS E. GARNSEY, University of Colorado
EDGAR M. HOOVER, Council of Economic Advisers
STEFAN ROBOCK, Tennessee Valley Authority
HARRY S. SCHWARTZ, Federal Reserve Bank of San Francisco
NATHANIEL WALLMAN, University of New Mexico

2:30 P.M. ISSUES IN METHODOLOGY: Joint session with the Econometric Society

Chairman: FRITZ MACHLUP, The Johns Hopkins University

Papers: The Impact on General Economics of More Realistic Theories of the Firm
K. E. BOULDING, University of Michigan
Institutionalism and Empiricism in Economics
FRANK H. KNIGHT, University of Chicago
Economic Theory and Mathematics—An Appraisal
PAUL A. SAMUELSON, Massachusetts Institute of Technology

Discussion: ALLAN G. GRUCHY, University of Maryland
W. W. LEONTIEF, Harvard University
Another to be announced

INFLATION CONTROL IN THE UNITED STATES

Chairman: EDWIN G. NOURSE, Washington, D.C.

Papers: Recent Experience with Monetary-Fiscal Measures
WOODLIEF THOMAS, Federal Reserve Board
Reflections on a Year of Price Controls
G. GRIFFITH JOHNSON, Economic Stabilization Agency

Discussion: ALBERT G. HART, Columbia University
R. B. HEFLEBOWER, Northwestern University

PUBLIC UTILITIES, TRANSPORTATION, AND SPATIAL ORGANIZATION (Program prepared by C. Emery Troxel, Chairman of Transportation and Public Utilities Section)

Chairman: C. EMERY TROXEL, Wayne University

Papers: Criteria for the Establishment of an Optimum Transportation System
RALPH L. DEWEY, Ohio State University

The Optimum Geographic Size of a Rate-Making Unit for Electricity
William F. Kennedy, Santa Barbara College

Discussion: Edmund A. Nightingale, University of Minnesota
Joseph R. Ransmeier, Dartmouth College

8:30 p.m. PRESIDENTIAL ADDRESS
John H. Williams, Harvard University

Friday, December 28

9:30 a.m. FISCAL THEORY

Chairman: Roy Blough, Council of Economic Advisers

Papers: An Appraisal of Current Fiscal Theory
Paul J. Strayer, Princeton University
The Anti-Inflationary Implications of Alternative Forms of Taxation
Richard B. Goode, University of Chicago

Discussion: Carl S. Shoup, Columbia University
Harold M. Somers, University of Buffalo

THE THEORETICAL ANALYSIS OF ECONOMIC GROWTH

Chairman: Harold A. Innis, University of Toronto

Papers: The Theoretical Analysis of Economic Growth—An Econometric Approach
Evsey D. Domar, The Johns Hopkins University
Economic Growth—Econometric Models in Relation to the Social Setting
David M. Wright, University of Virginia

Discussion: Thomas C. Schelling, Office of Special Assistant to the President
Joseph J. Spengler, Duke University

WAGES, MANPOWER, AND REARMAMENT: Joint session with the Industrial Relations Research Association

Chairman: J. Douglas Brown, Princeton University

Papers: Wage Stabilization
Clark Kerr, University of California
Problems in the Allocation of Manpower
William Haber, University of Michigan

Discussion: Dale Yoder, University of Minnesota
Another to be announced

12:15 p.m. LUNCHEON MEETING: Joint session with the American Finance Association

Chairman: To be announced
Speaker to be announced

2:30 p.m. GENERAL FACTORS IN ECONOMIC GROWTH IN THE UNITED STATES: Joint session with the American Statistical Association

Chairman: Arthur F. Burns, Columbia University and National Bureau of Economic Research

Papers: Relation of Capital Formation to National Product
Simon Kuznets, University of Pennsylvania and National Bureau of Economic Research
Secular Change in Income Distribution
Geoffrey H. Moore, National Bureau of Economic Research

The Rôle of Productivity in Economic Growth
FREDERICK C. MILLS, Columbia University and National Bureau of Economic Research

Discussion: JAMES S. DUESENBERRY, Harvard University
FRANK R. GARFIELD, Federal Reserve Board
RAYMOND W. GOLDSMITH, Washington, D.C.

RECENT DEVELOPMENTS IN UNITED STATES MONETARY POLICY: Joint session with the American Finance Association

Chairman: ALFRED C. NEAL, Federal Reserve Bank of Boston

Papers: Integrating Debt Management and Open Market Operations
ROBERT V. ROSA, Federal Reserve Bank of New York
Direct Control over Bank Portfolios as an Instrument of Monetary Control
LAWRENCE H. SELTZER, Wayne University
An Appraisal of Selective Credit Controls
R. J. SAULNIER, Barnard College

Discussion: HOWARD R. BOWEN, University of Illinois
LESTER V. CHANDLER, Princeton University
PAUL W. MCCRACKEN, University of Michigan

VALUE THEORY

Chairman: EDWARD H. CHAMBERLIN, Harvard University

Papers: A Rehabilitation of Partial Analysis
MELVIN W. REDER, Stanford University
Dynamic Aspects of Oligopoly Price Theory
CARL KAYSEN, Harvard University

Discussion: GARDNER ACKLEY, Office of Price Stabilization
JOE S. BAIN, University of California

5:00 P.M. ANNUAL BUSINESS MEETING

8:30 P.M. BOSTON POPS ORCHESTRA—Arthur Fiedler conducting

Saturday, December 29

9:30 A.M. BUSINESS CYCLE THEORY

Chairman: MOSES ABRAMOVITZ, Stanford University

Papers: Toward a Dynamic Theory of the Cycle
ALVIN H. HANSEN, Harvard University
Wages in the Business Cycle
LLOYD G. REYNOLDS, Yale University

Discussion: ROBERT A. GORDON, University of California
JOSEPH SHISTER, University of Buffalo

INTERNATIONAL TRADE IN THE POSTWAR WORLD

Chairman: JOHN B. CONDLIFFE, University of California

Papers: Methods of Adjustment in International Payments—The Lessons of Postwar Experience
EMILE DESPRES, Williams College
C. P. KINDLEBERGER, Massachusetts Institute of Technology
Regional Organization in the Sphere of Trade and Payments—Western Europe and the Sterling System
J. MARCUS FLEMING, British Cabinet Offices and Visiting Professor, Columbia University

Discussion: Albert O. Hirschman, Federal Reserve Board
Robert Triffin, Yale University

THE ROLE OF WAR IN AMERICAN ECONOMIC DEVELOPMENT: Joint session with the Economic History Association

Chairman: Earl J. Hamilton, University of Chicago

Papers: Wartime Changes in the Money Supply in the United States
Milton Friedman, University of Chicago
The Effects of the Civil War and the Two World Wars on American Transportation
John G. B. Hutchins, Cornell University

Discussion: Milton Heath, University of North Carolina
C. R. Whittlesey, University of Pennsylvania

12:00 m. *Luncheon Meeting of the Executive Committee*

2:30 p.m. GROWTH IN UNDERDEVELOPED COUNTRIES

Chairman: Paul N. Rosenstein-Rodan, International Bank for Reconstruction and Development

Papers: International Trade Theory and Policy from the Standpoint of Underdeveloped Countries
Ragnar Nurkse, Columbia University
The Fiscal and Monetary Implementation of Development Programs
John H. Adler, International Bank for Reconstruction and Development
Some Problems of Growth in Underdeveloped Countries
Arthur I. Bloomfield, Federal Reserve Bank of New York

Discussion: Hans P. Neisser, New School for Social Research
H. W. Singer, United Nations

MONETARY THEORY

Chairman: James W. Angell, Columbia University

Papers: Interest Rates, Liquid Assets, and Spending Decisions
James Tobin, Yale University
Wartime Monetary Events and Monetary Theory
Roland N. McKean, Vanderbilt University

Discussion: Edward S. Shaw, Stanford University
Henry C. Wallich, Yale University

COLLECTIVE BARGAINING IN THE REGULATED INDUSTRIES (Program prepared by C. Emery Troxel, Chairman of Transportation and Public Utilities Section)

Chairman: C. Emery Troxel, Wayne University

Papers: Interdependence of Wage and Price Determination in the Regulated Industries
Eli W. Clemens, University of Maryland
The Regulatory Agency and Industrial Relations: The Airlines Case
Mark Kahn, Wayne University

Discussion: Robert W. Harbeson, University of Illinois
William N. Leonard, Pennsylvania State College

Deaths

Benjamin F. Brooks, April 22, 1951.
William H. Kiekhofer, August 1, 1951.
Charles G. McBride, June 10, 1951.

Appointments and Resignations

Moses Abramovitz, of Stanford University, has been granted a year's leave to work with the National Bureau of Economic Research.

Gardner Ackley has been promoted to professor of economics at the University of Michigan.

George P. Adams, Jr. has been promoted to professor of economics at Cornell University.

John F. Adams has been promoted to associate professor in the School of Business and Public Administration of Temple University.

Walter Adams has been promoted to associate professor of economics at Michigan State College.

Michael Albery has been appointed associate professor of finance and economics at Boston College.

Kenneth J. Arrow, of Stanford University, will be engaged in statistical research in Europe during the current year under a Social Science Research Council fellowship grant.

Paul A. Baran has been promoted to professor of economics at Stanford University.

Nathan Belfer has been appointed assistant research director of the research department of the International Ladies' Garment Workers' Union.

Ralph A. Belfiglio, of the School of Business Administration, University of Pittsburgh, has been called to active duty in the Air Force.

Lester Blum has been promoted from assistant professor to associate professor of economics at Colgate University.

Eva Boenheim has been appointed instructor in economics at Barnard College.

Arthur Borak has returned to the University of Minnesota after a year's leave during which he was engaged in special research in the field of taxation for the military government in Japan.

Howard R. Bowen has been granted two-thirds time leave from the University of Illinois in the current academic year to carry on research projects for the American Economic Association and the National Council of Churches of Christ.

Dorothy S. Brady has resigned as professor of economics at the University of Illinois.

Buford Brandis is on leave from the School of Business Administration, Emory University, to serve as economist with the Machinery and Allied Products Institute in Washington, D.C.

Gerald F. Brannon has been appointed lecturer in statistics in the department of economics of the Graduate School of Georgetown University.

G. A. Briefs, of the Graduate School of Georgetown University, is on leave for special study under a grant from the Alfred P. Sloane Foundation.

Godfrey S. Briefs, of Georgetown University, has been called to active duty in the U. S. Army.

Paul A. Brinker has been promoted from assistant professor to associate professor of economics at the University of Oklahoma.

Ayers Brinser has been appointed visiting lecturer in economics at Harvard University.

Tony Brouwer has been appointed instructor in economics at the University of Michigan.

Douglas S. Brown has accepted an appointment as senior economic and business analyst at the National Bank of Detroit.

Paul L. Brown has been appointed associate professor of marketing at the Ohio State University.

S. L. Brown has resigned as assistant professor of economics at Georgetown University to accept a position in the statistics department of the Chrysler Corporation in Detroit.

Karl Brunner, of the Cowles Commission, University of Chicago, has been appointed assistant professor of economics at the University of California, Los Angeles.

Foy M. Buchanan has resigned as instructor in economics at the University of South Carolina to serve as analyst in the Sales Tax Division of the South Carolina Tax Commission.

Edward C. Budd has resigned from the University of Illinois to accept an instructorship at the University of Oregon.

James W. Bunting has been named director of the Bureau of Business Research, University of Georgia.

R. L. Bunting has been granted a military leave of absence from the University of North Carolina to serve in the Air Force Reserve Officers Training Corps.

David W. Bussell, of the Ohio State University, is on active duty with the United States Navy.

Rita R. Campbell has resigned as assistant professor of economics at Tufts College.

William M. Capron has resigned as assistant professor of economics at the University of Illinois to accept a position with the RAND Corporation.

D. D. Carroll has resumed his duties as professor of economics at the University of North Carolina after a year's leave of absence.

C. C. Carter has been given a military leave of absence from the University of North Carolina to serve in the Air Corps.

Fred E. Case, formerly of the University of Florida, is lecturer in real estate and land economics in the School of Business Administration, University of California at Los Angeles.

Alfred F. Chalk has been promoted from associate professor to professor of economics at the Agricultural and Mechanical College of Texas.

Wingfield Chamberlain has resigned from Hofstra College to take a position with the Defense Minerals Administration of the Department of Interior.

Edward H. Chamberlin has been named David A. Wells Professor of Political Economy at Harvard University.

John S. Chipman has been appointed assistant professor of economics at Harvard University.

Denzel C. Cline has been granted a leave of absence from Michigan State College for research study.

Clay L. Cochran has been promoted from assistant professor to associate professor of economics at the University of Oklahoma.

David S. Craig has been appointed associate professor of business law at the Ohio State University.

W. Arthur Cullman has been appointed assistant professor of marketing at the Ohio State University.

W. O. Cummings has been appointed lecturer in insurance at the University of North Carolina.

William R. Davidson has been appointed assistant professor of marketing at the Ohio State University.

Keith Davis, formerly of the University of Texas, has joined the faculty of the School of Business, Indiana University, as associate professor of management.

Dudley Dillard has been named head of the department of economics, College of Business and Public Administration, University of Maryland.

James H. Dornburg has resigned from the School of Business Administration, Emory University, to accept a position as statistical analyst with the Lockheed Aircraft Corporation, Marietta, Georgia.

Harland Doughty has been promoted to assistant professor of consumption economics at Iowa State College.

Delbert J. Duncan, formerly of the School of Business and Public Administration, Cornell University, has joined the staff of the School of Business Administration, University of California, Berkeley.

Edgar S. Dunn, Jr. has been appointed assistant professor of economics at the University of Florida.

Robert C. Earnest, formerly of the Graduate School of the Ohio State University, has been appointed assistant professor of economics at Kansas State College.

Edgar O. Edwards has been appointed lecturer in the department of economics and social institutions, Princeton University.

Howard S. Ellis taught in the American Studies Seminar at the Universities of Tokyo and Kyoto last summer.

Paul T. Ellsworth is on leave of absence from the University of Wisconsin to serve as special adviser to the International Bank for Reconstruction and Development.

Paul Fisher has been granted leave of absence from Dartmouth College to serve with the Labor Division of the Economic Cooperation Administration.

J. Marcus Fleming has been reappointed visiting professor in the department of economics of Columbia University for the current academic year.

A. C. Flora, Jr. has been named adjunct professor of economics at the University of South Carolina.

James W. Ford has been appointed instructor in economics at Columbia College.

Peter G. Franck has been appointed visiting associate professor of economics at Haverford College.

William W. Frasure, of the School of Business Administration of the University of Pittsburgh, has entered upon active duty in the U. S. Navy.

Robert Freedman has been reappointed visiting assistant professor of economics at Colgate University for the current academic year.

Walter Garbalinski has resigned from the Illinois Institute of Technology to accept a position with the Bureau of Labor Statistics in Washington, D.C.

Richard K. Gaumnitz has been promoted from associate professor to professor of economics and assistant dean at the University of Minnesota.

Wayne F. Geisert has been appointed associate professor of economics at Manchester College, North Manchester, Indiana.

James M. Gillies, formerly of Indiana University, has been appointed lecturer in real estate and land economics in the School of Business Administration, University of California, Los Angeles.

Leland J. Gordon, of Denison University, is visiting professor of economics at Louisiana State University in the current academic year.

Amor Gosfield has returned to the department of economics of the University of Pennsylvania after having spent two years in Puerto Rico as director of a study of the Puerto Rican economy.

Rush V. Greenslade has joined the staff of the Tennessee Valley Authority as industrial economist in the Division of Regional Studies.

Harold M. Groves, of the University of Wisconsin, served in Bonn, Germany as a consultant to the ECA Mission on Revising the German Tax System in the past summer.

Charles Gulick, of the University of California, Berkeley, is visiting professor at the New York State School of Industrial and Labor Relations this semester.

John G. Gurley has been appointed lecturer in the department of economics and social institutions, Princeton University.

Everett E. Hagen has resigned as professor of economics and chairman of the department of economics at the University of Illinois.

J. A. Haller has been appointed instructor in economics at Georgetown University.

Arnold C. Harberger, of the Johns Hopkins University, has received a Social Science Research Council grant for research on the relationship between relative prices and the structure of international trade.

Delbert C. Hastings, formerly of the University of Minnesota, is now on the staff of the Bureau of Business and Economic Research of the University of Washington.

William W. Haynes has returned to the University of Kentucky after spending a year at the University of Leeds on a Fulbright grant.

A. M. Henderson, formerly of the University of Manchester, is visiting professor of economics at the Carnegie Institute of Technology during the current academic year.

John P. Henderson, formerly of the University of Buffalo, has been appointed acting instructor in economics at Stanford University.

Orris C. Herfindahl has resigned as assistant professor of economics at the University of Illinois to take a position in the Bureau of Mines, Department of the Interior.

F. L. Ho has been reappointed visiting professor of economics at Columbia University for the current academic year.

Daniel M. Holland, formerly of Columbia College, is now engaged in research for the National Bureau of Economic Research.

Robert J. Holloway has been promoted from lecturer to assistant professor of economics at the University of Minnesota.

Charles C. Holt, of the University of Chicago, has been appointed senior research fellow in economics at the Carnegie Institute of Technology.

Schuyler D. Hoslett has been appointed associate professor of administration in the Graduate School of Business, Columbia University.

John A. Howard has been reappointed visiting assistant professor of marketing in the School of Business of the University of Chicago.

Elizabeth E. Hoyt has returned to Iowa State College after a year's leave on a Fulbright lectureship at Mackere College, Uganda, Africa.

Leonid Hurwicz, formerly of the University of Illinois, has been appointed professor of economics and mathematics at the University of Minnesota.

Walter Isard has been appointed lecturer on economics at Harvard University for the current academic year.

Arthur Jansen has been appointed lecturer in finance at the Graduate School of Business, Columbia University, for the current academic year.

Charles E. Johnson, formerly of the University of Minnesota, has joined the faculty of the University of California, Berkeley.

Norman Kaplan has been granted leave from the Illinois Institute of Technology to work with the RAND Corporation.

William T. Kelley has been promoted from instructor to assistant professor of marketing at the University of Pennsylvania.

William C. Kessler, on leave of absence from Colgate University, is serving as visiting professor to American occupation forces in Germany.

Anthony Koo has been promoted to assistant professor of economics at Michigan State College.

Harold D. Koontz, formerly of Trans World Airlines and the Consolidated Vultee Aircraft Corporation, has been appointed professor of transportation and business policy in the School of Business Administration, University of California, Los Angeles.

F. J. Kottke has been granted a leave of absence from the University of North Carolina to serve as economist with the Bureau of Industrial Economics of the Federal Trade Commission.

John K. Langum, formerly vice president and director of research of the Federal Reserve Bank of Chicago, has joined the faculty of the School of Business, Indiana University, as professor of business administration.

Albert Lauterbach is on leave from Sarah Lawrence College to do research work at the Survey Research Center, University of Michigan.

D. J. Leahy has been appointed instructor in economics at Georgetown University.

Richard W. Lindholm has returned to Michigan State College after spending a year on the staff of the Board of Governors of the Federal Reserve System in Washington, D.C.

John M. Lishan has resigned as instructor of economics at Brown University.

Lawrence C. Lockley, of New York University Graduate School of Business Administration, has been appointed dean of the School of Commerce, University of Southern California.

Friedrich A. Lutz, on leave from Princeton University in the current year, is visiting professor at the University of Freiburg in Germany.

Santiago P. Macario, formerly of the University of Texas, has accepted a position with the United Nations Economic Commission for Latin America in Mexico.

Fritz Machlup gave a course of lectures at the Hebrew University, Jerusalem, Israel during the summer.

Carl C. Malone has been granted a leave of absence from Iowa State College to serve as an advisor at the University of Wales.

Alden C. Manchester, formerly of Harvard University and the Bureau of Agricultural Economics, has been appointed executive secretary of the New England Research Council on Marketing and Food Supply with headquarters in Boston.

Philip J. McCarthy has been promoted to the rank of professor in the New York State School of Industrial and Labor Relations.

John McConnell has returned to the New York State School of Industrial and Labor Relations after a year's leave of absence during which he was co-director of a study for the Twentieth Century Fund.

D. M. McGill has been given a military leave from the University of North Carolina to serve in the Air Force Finance Center.

Roland N. McKean, on leave from Vanderbilt University, has joined the staff of the RAND Corporation.

Jean T. McKelvey has been promoted to the rank of professor in the New York State School of Industrial and Labor Relations.

Gordon McKinley has resigned from the Ohio State University to accept a position as chief economist with the Prudential Insurance Company.

Paul McWhorter has been promoted to professor and chairman of the department of marketing, University of Arkansas.

Taulman A. Miller has been promoted from assistant professor to associate professor of economics at Indiana University.

Frederick T. Moore has resigned as assistant professor of economics at the University of Illinois to accept a position in the Bureau of Mines, Department of the Interior.

Theodore Morgan has been granted leave from the University of Wisconsin until September 1952 to serve as economic adviser to the Bank of Ceylon.

J. E. Morton, on leave from the New York State School of Industrial and Labor Relations, is chief of statistical development, Housing and Home Finance Agency, Washington, D.C.

William H. Newman has been designated Samuel Bronfman Professor of Democratic Business Enterprise in the Graduate School of Business, Columbia University.

Archibald J. Nichol has been promoted from assistant professor to associate professor of economics at the University of Pennsylvania.

Robert Osborn, Jr. has been appointed instructor in economics at Princeton University.

Alfred R. Oxenfeldt has resigned as chairman of the department of economics at Hofstra College to accept an appointment as associate professor of economics at City College of New York.

William B. Palmer has been promoted to the rank of associate professor of economics at the University of Michigan.

Andreas G. Papandreou has rejoined the faculty of the University of Minnesota as professor of economics.

Vincent A. Perry has been promoted to the rank of assistant professor in the College of Business Administration of Lehigh University.

Virginia Peterson has been appointed instructor in statistics in the School of Business of the University of Chicago.

Kirk R. Petshek, on leave from Colgate University, is serving as branch chief of the Industrial Relations Analysis Branch of the Department of Labor.

Almarin Phillips has returned to the University of Pennsylvania as instructor in economics.

Richard Phillips has been promoted to the rank of assistant professor of economics at Iowa State College.

Michael A. Plesher has resigned from the School of Business Administration, University of Pittsburgh, to take a position as economist for the CIO.

Karl P. Polanyi has been appointed Schuyler Fiske Seager Fellow in Economics at Columbia University for the academic year 1951-52.

Kenyon E. Poole, of Northwestern University, was a member of the Fiscal Mission to the Bonn Government in the past summer.

Raymond P. Powell, of Princeton University, has been awarded a Social Science Research Council Fellowship to work on the Russian financial system at the Russian Research Center, Harvard University.

Robert L. Raimon has been appointed assistant professor in the New York State School of Industrial Labor Relations.

William F. Rech, formerly of the University of Pennsylvania, has joined the commercial research division of the United States Steel Corporation in Pittsburgh.

Margaret G. Reid has been granted a year's leave of absence from the University of Illinois to accept an appointment at the University of Chicago.

Charles F. Remer is on leave from the University of Michigan in the current semester for research study at Okayama.

Edwin P. Reubens is on leave from Cornell University for special research study.

Jennie Richmond has resigned as instructor in economics at the University of Maine.

Samuel B. Richmond has been appointed assistant professor of business statistics in the Graduate School of Business, Columbia University.

Lawrence S. Ritter has been promoted to assistant professor of economics at Michigan State College.

William E. Rogers has been appointed assistant professor of business management at the University of Oklahoma.

Sidney E. Rolfe, of Princeton University, has accepted a position with the Wage Stabilization Board.

Arnold W. Sametz has been appointed assistant professor of economics at Princeton University.

Edward L. Sard has accepted a position with the National Association of House to House Installment Company, New York City.

Frederick N. Sass, formerly of the University of Pennsylvania, is now economist for the Philadelphia City Planning Commission.

William E. Schenk has been promoted from associate professor to professor of economics at the Agricultural and Mechanical College of Texas.

Frank W. Schiff, formerly of Columbia College, is now economist in the Foreign Research Department of the Federal Reserve Bank of New York.

Jacob Schmookler has been promoted to assistant professor of economics at Michigan State College.

Eli Schwartz has resigned from Brown University to accept a position as staff economist with the Regional Office of Price Stabilization.

Arthur Schweitzer has been promoted from the rank of associate professor to professor of economics at Indiana University.

Harold A. Shapiro, formerly of Trinity University, has accepted a position with the Office of Price Stabilization in Houston, Texas.

Donald L. Shawver has been appointed assistant professor of marketing at the University of Missouri.

Robert P. Shay has been promoted from instructor to assistant professor of economics at the University of Maine.

Geoffrey S. Shepherd, of Iowa State College, was in Japan during the summer at the request of the Japanese government to advise on agricultural price policy problems.

Louis Shere, of Indiana University, was retained by the government of Puerto Rico in the summer months as a consultant on tax problems.

Mary A. Shulman has been appointed instructor in economics at the University of Michigan.

Irving H. Siegel has left Johns Hopkins University to become full-time co-director of a Twentieth Century Fund study.

Leonard Silk is an economist with the Division of Housing Research, Housing and Home Finance Agency, Washington, D.C.

Haig Silvanie has been appointed director of the department of economics, St. Louis University.

J. N. Simler has been appointed instructor in economics at Georgetown University.

Fred Slavick has been appointed instructor in economics at Princeton University.

Caleb A. Smith has been promoted from assistant professor to associate professor of economics at Brown University.

Douglas B. Smith has resigned from the University of Illinois to accept a position in the Economic Development Section of the Department of State.

Tillman M. Sogge, of St. Olaf College, went to Japan again last summer to act as economic consultant to the Economic and Scientific Section of SCAP.

Beryl W. Sprinkel has been appointed assistant professor of economics at the University of Missouri.

R. Clay Sprowls, formerly of the University of Chicago, has been appointed lecturer in business statistics in the School of Business Administration, University of California, Los Angeles.

George A. Steiner has been granted a year's leave of absence from the University of Illinois to accept a position with the Defense Production Administration.

James H. Stewart has resigned from Washington and Lee University to become head of the department of social studies at Eastern Carolina Teachers College.

Robert S. Stockton has resigned from the Ohio State University to enter upon active service in the U. S. Navy.

James Storer is on leave from Bowdoin College to make a study of Philippine trade under a Fulbright fellowship.

John A. Stovel, of the University of Minnesota, is visiting assistant professor of economics at the University of Wisconsin during the current academic year.

Herbert E. Striner, formerly of Syracuse University, is now an economist in the Office of the Chief Economist, Bureau of Mines, Department of Interior.

Robert M. Sullivan has resigned from the School of Business Administration, University of Pittsburgh, to accept a position with the Mellon National Bank.

Theodore A. Sumberg has accepted a one-year assignment as director of the department of research and statistics of the Union Bank of Burma.

Ben B. Sutton has been promoted from lecturer to assistant professor of economics at the University of Minnesota.

Lorie Tarshis has been promoted to the rank of professor in the department of economics at Stanford University.

W. T. Tome has been appointed instructor in economics at Georgetown University.

Alice J. Vandermeulen is on leave from Claremont Men's College for special study under grant by the Social Science Research Council from the Twentieth Century Fund.

Henry C. Wallich, of the Federal Reserve Bank of New York, has accepted an appointment as professor of economics at Yale University.

N. T. Wang has resigned from Columbia College to accept a position with the United Nations in the field of Far Eastern research.

Basil A. Wapensky has resigned from the School of Business Administration, Emory University, to accept a position in the research department of the Federal Reserve Bank of Atlanta.

Harold L. Wattel is now in charge of the economics department of Hofstra College.

Sidney Weintraub has been appointed professor of economics at the University of Pennsylvania.

Jacob Weissman has been appointed instructor in economics in Columbia College for the current academic year.

Thomas L. Whisler has been appointed assistant professor of business management at the University of Missouri.

Thomson M. Whitin has been appointed instructor in economics at Princeton University.

John P. Windmuller has been appointed assistant professor in the New York State School of Industrial and Labor Relations to work with a group of German students who are studying at the School this year.

John B. Woosley has been made Kenan professor of finance at the University of North Carolina.

Herbert K. Zassenhaus, of Colgate University, has accepted a post with the International Monetary Fund.

Leonard Zobler is lecturer in economic geography in the Graduate School of Business, Columbia University.

FORTY-EIGHTH LIST OF DOCTORAL DISSERTATIONS IN POLITICAL ECONOMY IN PROGRESS IN AMERICAN UNIVERSITIES AND COLLEGES

The first list of this kind was dated January 1, 1904, and was sent to all members, but not regularly bound in the publications. A notation as to the earlier lists, extending from 1905 to 1927, may be found in the *Review* for September, 1927, page 574. Annual lists thereafter are to be found in the September number of the *Review* for each year.

The present list specifies doctoral degrees conferred, doctoral dissertations completed and accepted by the various universities, and the theses still in preparation. The last date given is the probable date of completion.

The list represents the status of the several theses on June 15, 1951, except for a few items later reported as completed.

Economic Theory; General Economics

Degrees Conferred

Lawrence Abbott, Ph.D., Columbia, 1951. The theory of quality competition.

Robert W. Adams, Ph.D., Massachusetts Institute of Technology, 1951. Use of economic models in forecasting.

Kenneth J. Arrow, Ph.D., Columbia, 1951. Measurement of economic stability.

Edward A. Carlin, Ph.D., New York, 1950. The relationships between the major economic philosophies since Adam Smith and those expressed by the Supreme Court, through opinions rendered in cases affecting the governmental control of business corporations from 1930 to 1940.

John S. Chipman, Ph.D., Johns Hopkins, 1951. The theory of intersectoral money flows and income formation.

Harold S. Diamond, Ph.D., Columbia, 1951. Studies in innovation theory.

Mona E. Dingle, Ph.D., California, 1951. The structure of interest rates: a study of market influences.

Leo E. Dobriansky, Ph.D., New York, 1951. The social philosophical system of Thorstein Veblen.

Cornelius A. Eller, S.J., Ph.D., St. Louis, 1951. A synthesis of the economic doctrines of John Atkinson Hobson.

Sherman E. Gunderson, Ph.D., Iowa, 1950. An appraisal of the economic theory and policy recommendations of John R. Commons.

Ingrid E. Hahne, Ph.D., Pennsylvania, 1951. Price discrimination and economic welfare with special reference to public utilities.

David B. Hamilton, Ph.D., Texas, 1951. Newtonian classicism and Darwinian institutionalism: a study of change in economic theory.

E. E. Liebhafsky, Ph.D., Illinois, 1951. National science policy and technological program.

Michael McPhelin, Ph.D., Harvard, 1951. Meaning and requirements of economic order.

Morris Mendelson, Ph.D., Cornell, 1950. Some aspects of consumer behavior.

Edward J. Mishan, Ph.D., Chicago, 1951. The effects of price-stabilizing speculation on equilibrium analysis.

Robert L. Rouse, Ph.D., Iowa, 1950. A reappraisal of the stagnation thesis.

John Sagan, Jr., Ph.D., Illinois, 1951. A study of the development of monetary theory of English economists in the classical tradition, 1776-1848.

Jacob Schmookler, Ph.D., Pennsylvania, 1951. The relation of invention to economic development.

Jerome F. Schwier, Ph.D., St. Louis, 1951. The production function, Euler's theorem, and the theory of distribution.

Paul Sultan, Ph.D., Cornell, 1950. Wage and employment relationships.

Tu Tu, Ph.D., Illinois, 1950. The pricing system in a planned economy.

Bernard W. Wayne, Ph.D., Chicago, 1950. The neo-historismus of Werner Sombart.

Theses Completed and Accepted

Joseph Cropsey, B.A., Columbia, 1939; M.A., 1940. Polity and economy: an interpretation of the principles of Adam Smith. *Columbia.*

Patrick W. Gearty, B.A., St. Paul Seminary, 1941; M.A., Catholic, 1947. Economic and social philosophy of Monsignor John A. Ryan. *Catholic.*

Theses in Preparation

Carlisle W. Baskin, B.S., South Carolina, 1942; M.A., Virginia, 1947. A review and application of certain theories of the spacing of cities or central places. 1952. *Virginia.*

Joe E. Brown, B.S., Texas College of Arts and Industries, 1939; M.S., 1941. Population theory and the value problem: an institutional economic analysis. 1952. *Texas.*

Ira C. Castles, B.S., Louisiana State, 1934; M.A., Columbia, 1947. A study of economic ideas in North Carolina, 1760-1860. 1952. *North Carolina.*

Jere W. Clark, B.B.A., Georgia, 1946; M.S., 1948. Inter-community commodity flows within the United States. 1953. *Virginia.*

Joseph W. Conrad, B.A., Grinnell, 1935; M.A., California, 1943. Property income and the theory of functional distribution. 1952. *California.*

George F. Dimmler, B.A., California, 1936; M.A., Columbia, 1941. The transaction as a unit of economic analysis. 1952. *Columbia.*

Richard A. Easterlin, M.E., Stevens Institute of Technology, 1945; M.A., Pennsylvania, 1949. Critical review of the theory and measurement of economic growth. 1953. *Pennsylvania.*

A. C. Flora, Jr., B.A., South Carolina, 1943; M.A., 1949. Economic thought in South Carolina, 1815-1860. 1952. *North Carolina.*

Arthur M. Freedman, M.A., Cincinnati, 1939. Current issues in the theory of interest. *Pennsylvania.*

Francis C. Genovese, B.A., Toronto, 1942; M.A., 1946. A going concern theory of profits. 1952. *Wisconsin.*

A. S. Hall, B.S., Illinois, 1947; M.S., 1949. The development of general equilibrium theory by the Lausanne School. 1951. *Illinois.*

Daniel Hamberg, B.S., Pennsylvania, 1945; M.A., 1947. Analysis of the theory of the equilibrium rate of growth. 1953. *Pennsylvania.*

Edwin W. Hanczaryk, B.A., Brown, 1941; M.A., 1947. The role of the interest rate in welfare economics. 1951. *Northwestern.*

Charles N. Henning, B.A., California (Los Angeles); M.A., 1940. Social value and monetary theory. 1952. *California* (Los Angeles).

Abraham Hirsch, B.B.A., College of the City of New York, 1943; M.A., Columbia, 1947. Wesley Mitchell and economic science. 1952. *Columbia.*

William H. Hohmann, S.J., B.A., Boston College, 1937; M.A., 1938; St.L., Weston College, 1944. Economic content of considerations in support of contributive justice from Albertus Magnus to Victoria. 1952. *St. Louis.*

Francis T. Juster, B.S.Ed., Rutgers, 1949. The development of multiplier theory. 1952. *Columbia.*

Glenn A. Lehmann, B.A., Ohio Wesleyan, 1948; M.A., Harvard, 1950. Economic growth, with especial reference to the role of capital formation. 1952. *Harvard.*

Carl H. Madden, B.A., Virginia, 1942; M.A., 1950. Divergencies in growth rates among the different parts of an economic system. 1952. *Virginia.*

Harry Markowitz, M.A., Chicago, 1950. Theories of uncertainty and investment company behaviour. 1951. *Chicago.*

Leonard W. Martin, B.S., St. John's (Brooklyn), 1939; M.A., 1941. Mobility of capital. 1953. *Columbia.*

Thomas Mayer, B.A., Queens, 1949; M.A., Columbia, 1949. The stagnation thesis—a reanalysis. 1952. *Columbia.*

Frederick W. Morrissey, B.A., Santa Barbara College, 1940. Economic theories of the Fabians. 1952. *California.*

DEAN W. MORSE, B.A., Harvard, 1941. Theories of economic development. 1952. *Columbia.*

LAWRENCE NABERS, B.A., Arizona, 1942. The anti-neo-classical tradition in English political economy from Mill to Marshall. 1952. *California.*

WALTER C. NEALE, B.A., Princeton, 1947; M.A., Columbia, 1948. The institutional requirements and institutional effects of industrialization: the theoretical implications of the work of Veblen, Schumpeter, Polanyi, and Tawney. 1953. *Columbia.*

WALTER G. O'DONNELL, LL.B., Cleveland, 1930; B.A., Western Reserve, 1932; M.A., 1943. An institutional theory of value. 1952. *Columbia.*

RALPH W. PFOUTS, B.A., Kansas, 1942; M.A., 1947. The place of consumer's surplus in welfare economics. 1952. *North Carolina.*

RENO C. PRETTI, B.S., St. Benedict's College, 1941; M.A., Georgetown, 1949. Dynamic wage theory. 1951. *Georgetown.*

STANLEY REITER, B.A., Queens (New York), 1947; M.A., Chicago, 1950. Production, returns to scale, and the internal structure of the firm. 1951. *Chicago.*

SIDNEY SCHOEFFLER, B.S., New York, 1945; M.A., Pennsylvania, 1946. The theory of prediction of economic phenomena. *New School for Social Research.*

MITCHELL M. SMILAND, B.S., Minnesota, 1946. The economics of N.-F. Canard. 1952. *California.*

BENJAMIN SOLOMON, M.A., Chicago, 1950. Large corporations and the theory of investment decisions. 1952. *Chicago.*

JACOB A. STOCKFISCH, B.A., Pomona, 1947. Tax capitalization and related issues in capital theory. 1952. *California.*

PERRY D. TEITELBAUM, B.S., College of the City of New York, 1946; M.A., Columbia, 1948; M.A., Chicago, 1951. A reconsideration of the acceleration principle. 1952. *Chicago.*

ELIZABETH B. TOLMAN, B.A., Smith, 1941; M.A., Maine, 1942. Malthus and early English theories of economic crises. 1953. *Wisconsin.*

FRANCES A. TOYER, B.S., Bluefield State College, 1938; M.A. Atlanta, 1942. The economics of John Bates Clark. 1952. *New York.*

GEORGE M. UMEMURA, B.A., Ohio Wesleyan, 1946; M.B.A., Indiana, 1948. The marketing concepts of the classical school. 1952. *Indiana.*

MALCOLM C. URQUHART, B.A., Alberta, 1940. Capital accumulation, technological change, and economic progress: a study of economic change with special reference to the functional distribution of income. 1952. *Chicago.*

FRANK VAN BRUNT, M.A., Chicago, 1948. Certain community experiments in alternative systems of distribution. 1951. *Chicago.*

JOHN J. WAELTERMANN, B.A., St. Louis, 1946; M.A., 1948. Statements of Pius XII on economic doctrine in relation to statements of Pius XI. 1952. *St. Louis.*

WALTER C. WAGNER, B.S., North Carolina, 1941; M.A. Arkansas, 1947. Economic equilibrium as an exemplification of social reciprocity. 1952. *Texas.*

DONALD A. WATSON, M.A., Iowa, 1948. The theory of optimum distribution of personal income. 1951. *Iowa.*

JACOB I. WEISSMAN, B.A., Michigan, 1935; J.D., 1936. Studies in the relationship between law and economics. 1952. *California.*

WILLIAM V. WILMOT, JR., B.A., Syracuse, 1937; M.A., 1939. Some theoretical considerations of the restrictive practices of cartels. 1951. *Wisconsin.*

DONALD T. WOOD, B.A., Harvard, 1937; M.A., Columbia, 1947. A critical reexamination of Henry George's principles of site rent taxation. 1953. *Columbia.*

IBSON WU, B.S., Chiao-Tung, 1941; M.A., Washington, 1948. Micro-analysis of the theory of employment and value. 1953. *Columbia.*

Economic History; National Economies

Degrees Conferred

LEON AGRANAT, Ph.D., New School for Social Research, 1951. Price control in Germany.

HUGH G. J. AITKEN, Ph.D., Harvard, 1951. W. H. Merritt and the Welland Canal Co., a study in entrepreneurial approach to economic history.

LELAND ALLBAUGH, Ph.D., Harvard, 1951. The economy of Crete and the means to improvement.

ALBERT Y. BADRE, Ph.D., Iowa, 1950. The economic development of Lebanon with special emphasis on finance.

GORDON DONALD, JR., Ph.D., Chicago, 1951. The depression in cotton textiles, 1923-49.

DOROTHY GREGG, Ph.D., Columbia, 1951. The exploitation of the steamboat: the case of Colonel John Stevens.

WILLIAM HALLER, JR., Ph.D., Columbia, 1951. The Puritan frontier: town-planning in New England colonial development, 1630-1660.

RALPH E. HOLBEN, Ph.D., Columbia, 1951. Swedish economic policy and economic stability.

FRANCES C. HUTNER, Ph.D., Columbia, 1950. The Farr Alpaca Co.: a case study in business history.

SIMEON HUTNER, Ph.D., Princeton, 1951. Economic maximization in time of war, an historical survey.

SARA A. PAYNE, Ph.D., New York, 1950. The contribution of southern political economists to the development of states' rights philosophy from the economic crisis of 1828 to that of 1860.

WILBERT H. RUENHECK, Ph.D., New York, 1951. Business history of the Robert Gair Company, 1864 to 1927.

HENRY F. SCHOENBECK, Ph.D., Nebraska, 1951. The economic views of James K. Polk as expressed in the course of his political career.

THEODORE A. SUMBERG, Ph.D., New School for Social Research, 1950. The process of industrial development.

BERNARD F. TRIMPE, D.C.S., Indiana, 1950. History of Stokely-Van Camp Company—1898-1950.

Theses Completed and Accepted

HAROLD SELIGMAN, B.A., Harvard, 1940; M.P.A., 1945; M.A., George Washington, 1945. Economic recovery in Western Germany. *Harvard.*

Theses in Preparation

EDWARD ALBERTAL, M.B.A., Minnesota, 1946. The economics of accelerated industrialization—a case study: Argentina, 1945-1950. 1953. *Minnesota.*

ROBERT K. ARNOLD, B.A., California, 1947. Economic history of the Philippine Islands, 1898-1946. 1952. *California.*

ROSEMARY M. ARNOLD, B.A., Hunter, 1938. Markets and pricing in native economies of West Africa: an institutional analysis. 1952. *Columbia.*

LEONARD J. ARRINGTON, B.A., Idaho, 1939. Mormon economic policies 1847-1907: a study of the role of the church in the development of a region. 1952. *North Carolina.*

HENRY G. AUBREY, Dr. rer. pol., University of Vienna, 1924. Mexican industrialization. *New School for Social Research.*

MAURICIO BAEZ, G.Agr., V. Central de Venezuela, 1942. Agricultural development in Venezuela under changing economic conditions. 1952. *Wisconsin.*

FRANCIS M. BATOR, B.S., Massachusetts Institute of Technology, 1949. Economics of decontrol: the German experiment of 1948. 1952. *Massachusetts Institute of Technology.*

DAVID M. BEHEN, Ph.B., Chicago, 1932. The labor movement in Chicago, 1877-1896. 1952. *Chicago.*

ROMAN BERNAUT, B.A., Columbia, 1947; M.A., 1949. The grain problem in the Soviet Union, 1926-30. 1952. *Columbia.*

GEORGE BLACKWOOD, B.A., Chicago, 1942; M.A., 1947. United Automobile Workers of America, 1937-1948. 1952. *Chicago.*

NATHAN BLOOM, B.S.S., College of the City of New York, 1942; M.A., Columbia, 1948. The nature of innovation in America, 1790-1860. 1952. *Columbia.*

DAVID D. BURKS, B.A. Carleton College, 1945. The dawn of manufacturing in Mexico. 1951. *Chicago.*

JANET G. CHAPMAN, B.A., Swarthmore, 1943; M.A., Columbia, 1950. Real wages in the Soviet Union, 1928-48. 1952. *Columbia.*

TIRTHA P. S. CHAWDHARI, B.Sc., Nagpur University, 1935. A plan for agricultural economic developments in Bihar. 1951. *Wisconsin.*

JOHN W. CHISHOLM, B.A., Baylor, 1936; M.A., Louisiana State, 1938. The economics of the salt industry in Louisiana. 1951. *Louisiana State.*

AN-MIN CHUNG, M.B.A., Pennsylvania, 1949. Industrial development in China: history, problems, prospects. 1953. *Pennsylvania.*

STANLEY H. COHN, B.A., Reed, 1947; M.A., Chicago, 1949. The role of the fiscal system in the Soviet economy. 1951. *Chicago.*

GEORGE COUTSOUMARIS, Graduate, Supreme School of Economic and Commercial Sciences, Athens, Greece, 1934. Possibilities of increasing economic efficiency in Greek agriculture. 1952. *Chicago.*

H. JEROME CRANMER, B.A., Drew, 1947; M.A., Columbia, 1949. The role of government in economic development: internal improvements in New Jersey. 1952. *Columbia.*

ALAN D. DAILEY, B.S., Kansas State, 1924. M.A., Indiana, 1947. A re-examination of U.S. economic history, 1865-1896, in the light of recent developments in monetary theory. 1951. *Illinois.*

ROBERT A. DEGEN, B.S., Syracuse, 1947; M.A., 1949. Some major factors in the development of the Canadian economy, 1900-1950. 1952. *Wisconsin.*

HERBERT W. DOWD, Ph.B., Muhlenberg, 1943; M.A., Fletcher School, 1947. The native land and labor policies of the South African administration of South West Africa. 1951. *Fletcher School of Law and Diplomacy.*

FRANCIS DUNCAN, B.A., Ohio Wesleyan, 1943; M.A., Chicago, 1947. History of the Goodrich Lake Transportation Company. 1952. *Chicago.*

DONALD ELDON, B.A., Western Ontario, 1948; M.A., Harvard, 1951. American influence in the Canadian iron and steel industry. 1951. *Harvard.*

MARIANNE A. FERBER, B.A., McMaster, 1944; M.A., Chicago, 1946. The financial policy of Czechoslovakia after the first world war. 1952. *Chicago.*

JOHN W. FREDERICKSON, B.S., Northwestern, 1938; M.A., Chicago, 1942. American shipping and foreign commerce, 1789-1860. 1952. *Chicago.*

HARRY FRUMERMAN, B.S., College of the City of New York, 1933; M.A., Columbia, 1934. Jay Gould—a study of entrepreneurship. 1952. *Columbia.*

STEPHEN V. FULKERSON, B.A., California (Los Angeles), 1941; M.A., Chicago, 1947. Influence of the gentry as a class upon the society of restoration England. 1952. *Chicago.*

EDMOUR GERMAIN, Ph.B., Vermont, 1931; M.A., Columbia, 1948. The eastward migration of the Russians. *New School for Social Research.*

MORRIS D. GLICKFELD, B.A., California, 1941. The sources of American industrial entrepreneurship, 1800-1865. 1952. *California.*

JOSEPH GOLDMAN, B.A., Brooklyn, 1947; M.A., Columbia, 1950. Economic and social factors in the history of the southern iron and steel industry, 1850-1914. 1953. *Columbia.*

CARTER H. GOLEMBE, B.A., Columbia, 1946; M.A., 1947. State banks and economic development of the West, 1830-1945. 1952. *Columbia.*

SANFORD GORDON, B.S., New York, 1947; M.A., 1948. Public opinion as a factor in the emergence of a national antitrust program, 1873-1890. *New York.*

MORRIS HAMBURG, B.A., Pennsylvania, 1943; M.A., 1948. Income elasticity of demand for food. 1952. *Pennsylvania.*

JOHN P. HARDT, B.A., Washington, 1945; M.A., 1948. Trends of Soviet industrial structure, 1928-1950. 1952. *Columbia.*

HOMER C. HARLAN, B.A., Knox, 1940; M.A., Chicago, 1948. Charles Tyson Yerkes and the Chicago Transportation System. 1952. *Chicago.*

JAMES R. HOATH, B.S., Kansas State, 1941; M.A., 1949. Consumer interests in the New Deal agricultural programs and policies of the United States. 1952. *Nebraska.*

EDWIN HOLM, B.S., Virginia, 1939; M.A., 1941. The equilibrium rate of economic growth for the United States, 1870-1950. 1952. *Chicago.*

JAMES INGRAM, B.S., Alabama, 1942; M.A., Stanford, 1947. Economic change in Thailand. 1952. *Cornell.*

ALBERT KESSLER, B.S., College of the City of New York, 1946; M.A., Wisconsin, 1948. The Israeli economic budget and planned development. 1952. *Wisconsin.*

BERNARD KROEGER, B.E., Chicago Teachers College, 1942; M.A., Northwestern, 1950. Ninian Edwards Illinois history, 1809-1833. 1952. *Northwestern.*

ROBERT G. LAYER, B.A., Ohio Wesleyan, 1943; M.A., Harvard, 1948. Wages and labor productivity in four cotton textile mills in New England, 1825-1860. 1951. *Harvard.*

HAROLD LUBELL, B.A., Bard, 1944; M.P.A., Harvard, 1947; M.A., 1949. French investment program. 1952. *Harvard.*

ANDREA MARCHI, B.S.Sc., College of the City of New York, 1947; M.A., Columbia, 1948. Economic development in the southern regions of Italy. *New School for Social Research.*

VIRGINIA W. B. MILLER, B.A., Texas, 1941; M.A., 1942. Agricultural depression in the United States during the last quarter of the 19th century. 1952. *Columbia.*

NATHAN MORESH, B.S., New York, 1934; M.A., 1935. Commercial activity on the Jersey side of the lower Hudson in the 17th and 18th centuries. 1952. *New York.*

BOYD L. NELSON, B.A., Wisconsin, 1947; M.A., 1948. The laissez-faire theory as an influence in American economic history. 1952. *Wisconsin.*

JOHN NETER, B.S., Buffalo, 1943; M.B.A., Pennsylvania, 1947. A study of the United States post-war economics after World Wars I and II. 1953. *Columbia.*

HOWARD W. NICHOLSON, B.A., Oberlin, 1942; M.A., Harvard, 1948. The history of modern highway development in the Middle Atlantic states. 1952. *Harvard.*

CARL A. NORDSTROM, B.A., Antioch, 1946; M.A., Columbia, 1949. The rate of economic development in Switzerland. 1953. *Columbia.*

BERNARD OLSEN, M.A., Chicago, 1950. The role of foreign capital in the early development of Indiana, 1816-1860. 1952. *Chicago.*

ROBERT H. PERSONS, JR., B.A., Texas, 1946. Land use in the south plains of Texas, 1890-1950. 1953. *Columbia.*

WALLACE C. PETERSON, B.A., Nebraska, 1947; M.A., 1948. The reconstruction of the French economy. 1953. *Nebraska.*

JOHN M. PFAU, B.A., Chicago, 1947; M.A., 1948. American investments in Western Europe, 1918-1940. 1952. *Chicago.*

JOHN E. PIXTON, JR., B.S., Swarthmore, 1946; M.A., Connecticut, 1949. The early career of Charles G. Dawes. 1952. *Chicago.*

SAMUEL H. POPPER, B.A., Brooklyn, 1947; M.A., New York, 1948. The social and economic history of Newark, 1870-1910. 1952. *New York.*

ROBERT G. PRODRICK, B.A., Toronto, 1938; M.A., 1950. The emergence of public enterprise in the Canadian economy. 1953. *Columbia.*

GHANDKOTA V. SUBBA RAO, B.A., Madras, 1947; M.A., 1949. Some aspects of capital formation in under-developed areas, with special reference to India. 1952. *Columbia.*

ALAN D. REDDING, B.A., California (Los Angeles), 1948; M.A., Columbia, 1950. Productivity in Soviet agriculture, a comparative study. 1952. *Columbia.*

DANIEL J. REED, B.S., St. Louis, 1947; M.A., 1948. The reinterpretation of British history by British socialist historians. 1952. *Chicago.*

JACK J. ROTH, B.A., Chicago, 1946. The Sorelian conception of revolution. 1952. *Chicago.*

NAFI SAYEM-ADDAHR, B.A., American University of Beirut, 1948; M.A., Johns Hopkins, 1949. Conditions of economic development in Syria. 1952. *Columbia.*

SAUL SCHNEIDER, B.S., Long Island, 1943; M.A., New York, 1948. Findings of doctoral dissertations in the area of American economic history to 1789 as reflected in the literature of that field. *New York.*

HARVEY H. SEGAL, B.A., North Carolina, 1943. Internal improvements activity and business cycles, 1834-1861. 1952. *Columbia.*

HSU IH SEN, M.A., Iowa, 1949. A study of industrial production planning for China. 1952. *Iowa.*

EDITH G. SEVERO, B.A., Hunter, 1941; M.A., Wisconsin, 1943. History of the U.S. Department of the Treasury, 1789-1836. 1952. *Columbia.*

MILTON W. SHAPIRO, B.A., Brooklyn, 1943. Turkey, the transition to industrialization: a case study in deliberate industrialization from domestic resources. *New School for Social Research.*

A. SHUCHMAN, M.Sc., Pennsylvania, 1941. Economics of co-determination in West Germany. 1953. *Pennsylvania.*

RICHARD B. SIMONS, B.A., Miami, 1941. The controversy over the nationalization of the British coal industry, 1919-1946. 1952. *Chicago.*

ALFRED G. SMITH, JR., B.A., Columbia, 1934; M.A., 1939. Economic readjustment of an old cotton state, South Carolina, 1820-1860. 1952. *Columbia.*

ARTHUR J. R. SMITH, M.A., Harvard, 1949. The changing structure of public and private debt in the U.S., 1914-1948. 1950. *Harvard.*

GILBERT N. SMITH, B.A., Oklahoma City, 1936; M.B.A., Boston, 1938. Changing attitude of government toward competition and monopoly, 1911-1933. 1952. *Nebraska.*

JOHN S. SPRATT, B.A., Texas, 1928; M.A., 1928. Roots of economic unrest in Texas, 1885-1900. *Texas.*

GEORGE S. SPRINGSTEEN, JR., B.A., Dartmouth, 1943; M.A. Fletcher School, 1947; M.A.L.D., 1949. The British navigation laws: the influence of foreign nations upon their modification and repeal, 1783-1849; a study in commercial policy. 1952. *Fletcher School of Law and Diplomacy.*

DONALD E. STOUT, B.A., Colorado, 1949; M.A., 1949. Some aspects of innovations in retailing. 1952. *Harvard.*

ESTHER TAUBER, B.A., Missouri, 1932; M.S.Sc., New School for Social Research. Cooperative development in Palestine. *New School for Social Research.*

HASAN S. A. THAMER, B.S., California, 1941. Agricultural policy of Iraq. *California.*

RONALD B. THOMPSON, B.A., Yale, 1935. Soviet managerial policy, 1928-1939. 1952. *Chicago.*

RALPH N. TRAXLER, JR., B.A., Mercer, 1947; M.A., Colorado, 1947. The Texas and Pacific railroad land grant. 1952. *Chicago.*

EDGAR L. TURGEON, B.A., California, 1942; M.A., 1948. The pricing of producers' goods in the USSR. 1952. *Columbia.*

LESTER VANDEBERG, B.A., Morningside, 1941. American investments in Honduras. 1952. *Chicago.*

JOSE VERGARA, Graduate Agricultural Engineer, Special School of Agricultural Engineers, Madrid, Spain, 1930. Land reform and productivity in southern Spain: a problem of Mediterranean agriculture. 1951. *Chicago.*

MORTON WOLF, B.S., Pennsylvania, 1929; M.A., 1932. Capital formation under the English labor government. 1952. *Pennsylvania.*

CHARLES A. YAGER, M.A., Michigan, 1947. A study of the economic development of India. 1952. *Michigan.*

PHILIP W. YOUNG, B.A., Hamline, 1940; M.A., Chicago, 1947. The history of the good roads movement in Illinois, 1900-1920. 1952. *Chicago.*

EMILIO ZEA-GONZALEZ, B.A., San Carlos, Guatemala, 1941; M.S.S., New School for Social Research, 1949. The problem of industrialization in the Republic of Guatemala. *New School for Social Research.*

Statistics and Econometrics

Degrees Conferred

JEAN A. BRONFENBRENNER, Ph.D., Chicago, 1950. Asymptotic bias in least squares estimates of the parameters of a single linear stochastic equation in a complete system.

CARL F. CHRIST, PH.D., Chicago, 1950. A test of an econometric model for the United States, 1921-47.

LOUIS B. KAHN, Ph.D., Wisconsin, 1951. A study of productivity and its measurement.

MARSHALL E. MILLIGAN, Ph.D., Iowa, 1951. Some suggested applications of the theory of probability in the determination of sample for business and economic research.

FRED W. NORWOOD, Ph.D., Texas, 1951. Statistical study of secular trend in cyclical fluctuations in Texas business in relation to United States.

IRVING H. SIEGEL, Ph.D., Columbia, 1951. Concepts and measurements of production and productivity.

ROBERT SOLOW, Ph.D., Harvard, 1951. On the dynamics of the income distribution.

GEORGE SUZUKI, Ph.D., Minnesota, 1951. Estimation of demand for automotive replacement parts.

Saleh I. Toulan, Texas, 1951. An index of industrial production of Egypt.

Theses in Preparation

George H. Borts, B.A., Columbia, 1947; M.A., Chicago, 1949. Production relations in the railroad industry, 1951. *Chicago.*

George K. Brinegar, B.Ed., Illinois State Normal University, 1940; M.A., Chicago, 1949. Short-run effects of income changes upon household expenditures—a study of a one-industry city, Danielson, Connecticut. 1951. *Chicago.*

Rosson L. Cardwell, B.A., Chicago, 1940; M.A., 1949. Economic efficiency and hospital care. 1951. *Chicago.*

Donald M. Fort, B.A., Grinnell, 1938; M.A., Illinois, 1940; M.A., 1944. Costs and decisions in pork processing: a case study. 1952. *Chicago.*

Oscar R. Goodman, B.B.A., Northwestern, 1943; M.S., Wisconsin, 1947. The economics of sales forecasting. 1951. *Wisconsin.*

William Hamburger, B.A., Chicago, 1948; M.A., 1950. The consumption function. 1951. *Chicago.*

John O. E. Hardin, B.A., Handelshogskolan in Göteborg, Göteborg, Sweden, 1945; M.A., Minnesota, 1947. Concepts and measurement of productivity. 1952. *Minnesota.*

Delbert C. Hastings, B.S., Minnesota, 1947; M.A., 1949. Application of area sampling in market research. 1953. *Minnesota.*

Charles M. James, B.S., Pennsylvania, 1932. Measuring productivity in an extractive industry. 1952. *Pennsylvania.*

John M. Mattila, B.B.A., Minnesota, 1931; M.B.A., Wisconsin, 1947. A statistical analysis of the consumption function. 1952. *Wisconsin.*

Morton Zeman, B.A., Chicago, 1943; M.A., 1948. The effect of risk and uncertainty on the corporate demand for funds. 1952. *Chicago.*

Economic Systems; Planning and Reform; Cooperation

Degrees Conferred

Renzo D. Bianchi, Ph.D., Chicago, 1950. Liberalism and its critics, with special attention to the economic doctrines of the Roman Catholic Church.

Ya-lun Chou, Ph.D., Pennsylvania, 1951. The Chinese agrarian problem and the Communist reform.

Barnett S. Eby, Ph.D., Princeton, 1951. Economics and the concept of justice.

David Granick, Ph.D., Columbia, 1951. Plant management in the Soviet industrial system.

Joseph P. Kazickas, Ph.D., Yale, 1951. The sovietization of the Czechoslovakian economy.

Ira A. Kipnis, Ph.D., Chicago, 1950. The American socialist party, 1897-1912.

Laurence E. Leamer, Ph.D., Chicago, 1950. Economics and democratic social action: a study of the role of economics in the education of citizens for a free society.

Chi Pei Tseng, Ph.D., Iowa, 1950. England as a case study in planning and freedom, 1945-1950.

Henry H. Ware, Ph.D., Columbia, 1950. Economics of Soviet retail trade.

Theses in Preparation

Joseph S. Berliner, B.A., Harvard, 1947; M.A., 1949. The Soviet firm. *Harvard.*

Eva Boenheim, B.A., Michigan, 1945; M.A., Columbia, 1948. The problem of planning investment in socialist Britain. 1953. *Columbia.*

Walter S. Buckingham, Jr., B.S., Georgia Tech., 1948; M.S., 1949; M.A., Indiana, 1950. British nationalization and the concept of a socialized industry. 1951. *Indiana.*

Douglas F. Dowd, B.A., California, 1941. The theory of a corporative order. 1951. *California.*

Ronald H. Elperin, B.A., Wisconsin, 1939; M.A., 1950. Some English socialist forerunners of Marx: Gray, Bray, Hodgskin, Thompson. 1952. *Wisconsin.*

Alexander Erlich, Friedrich Wilhelm University, Berlin, 1930-1933; Free Polish University, Warsaw, 1934-1938. Problem of pricing in the Soviet economy. *New School for Social Research.*

Marvin Frankel, B.A., California, 1947. Labor plans for the administration of the private sector of British industry. 1952. *California.*

Nan L. Grindle, B.A., Connecticut College, 1944; M.A. Fletcher School, 1946. The economics of socialism. 1952. *Fletcher School of Law and Diplomacy.*

Lu-Seng Li, B.A., Cambridge University, England, 1947. Chinese Communists' economic policy for the first stage of China's transformation—the stage of new democracy. 1952. *Chicago.*

Arthur T. Y. Loh, B.A., St. John's University, Shanghai, 1945; M.A., Illinois, 1949. The theory of economic development and planning in an undeveloped country, as applicable to China. 1951. *Illinois.*

Jackson Mayers, B.A., Southern California, 1950; M.A., 1951. The theory of state monopoly and nationalization: 1952. *Southern California.*

Jack Minkoff, B.A., Cornell, 1948; M.A., Columbia, 1950. State planning committee (Gosplan) of the Union of Soviet Socialist Republics. 1953. *Columbia.*

William W. Moore, B.A., Columbia, 1935; M.I.A., 1948. Soviet social security system. 1953. *Columbia.*

Murray E. Polakoff, B.A., New York, 1946; M.A., Columbia, 1949. Theories on economic planning and freedom. 1953. *Columbia.*

Nicholas W. Rodin, B.Com., British Columbia, 1947; M.A., 1947; M.A., Columbia, 1950. Soviet price policies and administration. 1953. *Columbia.*

Sidney E. Rolfe, B.A., Chicago, 1943. Allocation of manpower under planning: the British case. 1951. *Chicago.*

George G. Sause, Jr., B.A., Moravian, 1941. Land development-value problems and the British Town and Country Planning Act. 1952. *Columbia.*

Bernard Schurman, B.S.S., College of the City of New York, 1939; M.A., Columbia, 1947. Economic planning in a liberal-capitalist society: a study of the National Resources Planning Board, 1933-1943. 1952. *Columbia.*

Arthur O. Seltzer, B.A., Chicago, 1938; M.A., 1941. The English Town and Country Planning Act, 1947; a study in the economics of planning resource allocation. 1952. *Chicago.*

Charles E. Silberman, B.A., Columbia, 1946. New Deal policies in the U.S.A., 1952. *Columbia.*

Valery J. Tereshtenko, Engineer, Institute of Agricultural (Czechoslovakia) Cooperation, 1926; State Commercial Institute, Czechoslovakia, 1929. Organization and management of Soviet collective farms. 1952. *Columbia.*

National Income and Social Accounting

Degrees Conferred

Joseph Grunwald, Ph.D., Columbia, 1950. National budgeting in Norway: a case study.

Gilbert P. Maynard, Ph.D., Iowa, 1951. A comparative analysis of business and national income concepts.

Thomas C. Schelling, Ph.D., Harvard, 1951. National income behavior: an introduction to algebraic analysis.

Theses in Preparation

Hector R. Anton, B.S., California (Los Angeles), 1942; M.B.A., 1947. Techniques of analysis of the flow of business funds. 1952. *Minnesota.*

Edward C. Budd, B.A., California, 1946. Labor's share in the national income. 1952. *California.*

Bahgat A. El-Tawil, B.Com., Fouad I University, Cairo, 1949. Amount and distribution of the national income of Egypt. 1952. *Columbia.*

WALLACE W. GARDNER, B.S.E., Purdue, 1943; M.B.A., Michigan, 1947. An investigation of the effect of the composition of liquid assets held by individuals upon their propensity to save current income. 1952. *Michigan.*

PHILIP GOLDEN, B.A., Minnesota, 1942. Consumers expenditures on services since World War I. 1952. *Columbia.*

HARLOW W. HALVORSON, B.S., Minnesota, 1938; M.S., 1940. A study of agricultural income and its relation to national income. 1951. *Minnesota.*

ERNEST C. HARVEY, B.Com., British Columbia, 1941; B.A., 1942; M.A., Columbia, 1948. A study of Arkansas income. 1952. *Columbia.*

ELDON S. HENDRIKSEN, B.S., California, 1941; M.B.A., 1947. An investigation of the relationship of capital consumption to national economic activity. 1952. *California.*

CHIA-KUEI HSIAO, B.A., National Tsing Hua, 1939; M.A., Columbia, 1949. The national income of the United States and China. 1951. *Columbia.*

HYMAN MENDUKE, B.A., Pennsylvania, 1943; M.A., 1948. Shares of upper income groups in income by states. 1952. *Pennsylvania.*

PAUL R. NICHOLS, B.S., New Hampshire, 1940; M.A., Connecticut, 1942; M.A., Harvard, 1949. An investigation of the effects of certain population changes on personal saving in the United States. 1951. *Harvard.*

HARRY T. OSHIMA, B.A., Hawaii, 1940. International comparisons of national income. 1953. *Columbia.*

ROBERT R. SCHUTZ, B.S., Minnesota, 1939; M.S., 1941. Transfer payments and income inequality. 1952. *California.*

EVERETT P. TREUX, B.A., William Jewell, 1952; M.A., Missouri, 1946. Income structure of economic areas in North Carolina. 1952. *North Carolina.*

LOUIS WINNICK, B.A., Brooklyn, 1946; M.A., Columbia, 1947. Residential wealth estimates. 1952. *Columbia.*

Business Fluctuations; Prices

Degrees Conferred

LAWRENCE ANTONELLIS, Ph.D., Harvard, 1951. Statistical testing of economic theories: a critical appraisal.

LEO BARNES, Ph.D., New School for Social Research, 1948. An experiment that failed—an analysis of economic forecasting in American reconversion 1945-46.

HAROLD K. CHARLESWORTH, Ph.D., Wisconsin, 1950. The economics of repressed inflation.

GLADYS N. CONLY, Ph.D., Wisconsin, 1951. Business cycles and municipal finance in Los Angeles County.

ROBERT EISNER, Ph.D., Johns Hopkins, 1951. Capital accumulation and business cycles: a theoretical exploration.

BERT G. HICKMAN, JR., Ph.D., California, 1951. Cyclical fluctuations in the cotton textile industry.

EVA L. MUELLER, Ph.D., Harvard, 1951. Business savings and the business cycle.

HAROLD J. PLOUS, Ph.D., Wisconsin, 1950. The hazards of full employment.

LAWRENCE S. RITTER, Ph.D., Wisconsin, 1951. The control of inflation: direct versus monetary fiscal measures.

ARNOLD W. SAMETZ, Ph.D., Princeton, 1951. Secular stagnation in a maturing economy.

BAREND A. DE VRIES, Ph.D., Massachusetts Institute of Technology, 1951. Study of the price effects of exchange depreciation.

ARTHUR A. WICHMANN, Ph.D., Northwestern, 1951. Fluctuations in the level of income, employment, and output: a comparative study of the theoretical views and policy proposals of Clark Warburton and Frank D. Graham.

Theses Completed and Accepted

WELLINGTON J. VOSS, B.A., Catholic, 1918; M.A., 1942. History of the development of the department store indexes of the Federal Reserve System. *Catholic.*

Theses in Preparation

DANIEL S. AHEARN, B.A., Columbia, 1949. Short-term fluctuations in the American economy, 1919-1950. 1953. *Columbia.*

RUBEN C. BELLAN, B.A., Manitoba, 1938; M.A., Toronto, 1941. Business fluctuations in Winnipeg from 1900. 1953. *Columbia.*

VIVIAN CARLIP, B.A., Radcliffe, 1945; M.S., Iowa State, 1946. Price flexibility. 1952. *Columbia.*

GRANT C. CHAVE, B.A., Oberlin, 1943; M.A., Chicago, 1948. The opinions of organized groups concerning inflation during the period 1946-1948. 1952. *Chicago.*

SIDNEY E. CHERNIK, B.A., Manitoba, 1947; M.A., Toronto, 1948. The terms of trade and economic fluctuations. 1951. *Massachusetts Institute of Technology.*

PHILIP J. W. GLAESSNER, B.A., Cambridge, 1940; M.A., 1944. Economic development and the inflationary potential. 1952. *Columbia.*

JAMES W. HARVEY, B.A., British Columbia, 1946. A study in the international transmission of business cycles: the 1929 downturn in the United States, Great Britain, and Canada. 1951. *California.*

JOHN D. HELMBERGER, B.S., Duluth State Teachers' College, 1941; M.S., Minnesota, 1947. Consumer credit and business stability. 1952. *Minnesota.*

CHARLES C. HOLT, B.S., Massachusetts Institute of Technology, 1944; M.S., 1944; M.A., Chicago, 1950. Analysis of selected proposals for mitigating undesirable effects of price level changes. 1952. *Chicago.*

ROBERT G. JAMES, B.B.A., Northwestern, 1945; M.B.A., Harvard, 1948. Corporate reporting under changing price levels. 1952. *Harvard.*

JACQUELINE R. KASON, B.A., California, 1945; M.S., Columbia, 1947. Social aspects of business cycles in the Los Angeles area. 1953. *Columbia.*

DAVID T. LAPKIN, B.A., Harvard, 1942; M.A., Columbia, 1947. Business cycles in the Pacific Northwest, a study in regional business cycles. 1952. *Columbia.*

FRANCIS H. LEACY, B.A., British Columbia, 1941. Price behavior in Canadian business cycles. 1952. *Columbia.*

WARREN D. MCCLAM, JR., B.S., California, 1947. Suppressed inflation in the United Kingdom—a study of the internal history and theoretical implications of controlled inflation. 1952. *California.*

LEWIS N. OSTERMAN, B.A., Yale, 1949; M.A., Columbia, 1951. An analysis of the depression of 1949, emphasizing monetary and fiscal measures. 1953. *Columbia.*

NEWTON Y. ROBINSON, B.S., Columbia, 1949; M.S., 1950. Hicks' contribution to the theory of the trade cycle. 1953. *Columbia.*

ARTHUR R. ROSENBAUM, B.A., Brooklyn, 1939; M.A., Columbia, 1941. Business attitudes toward counter-cyclical planning, 1929-1949. 1952. *Columbia.*

FREDERICK SASS, B.S.Ed., Temple, 1938. Cyclical fluctuations in numbers and liabilities of business failures. 1952. *Pennsylvania.*

JAMES R. SHIMIZU, B.A., Syracuse, 1944. A psychological theory of speculative prices. 1952. *Harvard.*

ELEANOR M. SNYDER, B.A., Connecticut College, 1936; M.A., Columbia, 1938. Interactions of levels of prices, income and family expenditures. 1952. Columbia.

BERNARD SOBIN, B.S.S., College of the City of New York, 1938. Effects of monetary-fiscal policies on consumption and investment. 1952. *Columbia.*

ROGER WILLIAMS, JR., B.A., Reed, 1939. The use of subsidies in inflation control and economic mobilization. 1952. *Columbia.*

ELLIOT ZUPNICK, B.S., College of the City of New York, 1947; M.A., Columbia, 1949. The economics of full employment, inflation, and anti-inflationary policies. 1952. *Columbia.*

Money and Banking; Short-Term Credit; Consumer Finance

Degrees Conferred

WILLIAM O. ANDERSON, Ph.D., Ohio State, 1950. An analysis of bank deposit balances.

JOHN S. DE BEERS, Ph.D., Chicago, 1951. The Mexican peso, 1941-49.

EDWARD BERMAN, Ph.D., Harvard, 1951. A theory of assets.

IRVING BRECHER, Ph.D., Harvard, 1951. Monetary and fiscal thought and policy in Canada, 1919-1939.

ARTHUR N. BRICKNER, Ph.D., Columbia, 1950. Liquidity in commercial banking.

WINTHROP EVERETT, Ph.D., Pennsylvania, 1951. The earnings of commercial banks.

KERMIT O. HANSON, Ph.D., Iowa State (Ames), 1950. Federal land bank loan operations in western Washington 1917-49.

GERHARDUS P. DE KOCK, Ph.D., Harvard, 1951. A history of the South African Reserve Bank.

WILLIAM E. KOENKER, Ph.D., Ohio State, 1950. A study of bank failures in North Dakota.

BAEN E. LEE, Ph.D., Columbia, 1950. Modern banking reforms in China.

HERBERT J. MARKLE, Ph.D., Iowa, 1951. Money and banking as factors in economic progress, 1789-1913.

A. M. QUINTERO-RAMOS, Ph.D., New York, 1950. A history of money and banking in Argentina.

SAMUEL A. ROSENBERG, Ph.D., North Carolina, 1950. Credit unions in North Carolina.

FRANCISCO R. SAENZ, Ph.D., Columbia, 1951. The problem of exchange stabilization.

ROBERT P. SHAY, Ph.D., Virginia, 1951. An evaluation of regulation W as a selective device for the control of credit.

Theses Completed and Accepted

AGNES LIANG, B.A., Yenching University, 1935; M.A., Catholic, 1945. Banking structure of the United States in the 20th century. *Catholic.*

ROBERT C. WEEMS, B.S., Mississippi State, 1933; M.B.A., Northwestern, 1934. The Bank of the State of Mississippi: a pioneer bank of the old southwest, 1809-1844. *Columbia.*

Theses in Preparation

JAMES H. ASHIDA, B.A., Washington, 1941; M.A., Pennsylvania, 1947; M.A., Chicago, 1948. Monetary reconstruction in Japan. 1952. *Chicago.*

JOHN J. BALLES, B.S., Iowa, 1942; M.A., 1947. Credit controls and debt management (1946-1950). 1951. *Ohio State.*

RICHARD J. BANNON, B.A., Catholic, 1948; M.A., 1950. Historical development of the weekly Federal Reserve statement and its interpretation. 1953. *Catholic.*

LELAND L. BEIK, B.A., Union; M.B.A., Columbia, 1949. History of Federal Deposit Insurance Corporation. 1952. *Columbia.*

BEN H. VANDEN BELT, M.A., Michigan, 1950. The structure of interest rates. 1952. *Michigan.*

MORRIS BORNSTEIN, M.A., Michigan, 1948. The role of the banking system in the economic development of Brazil. 1952. *Michigan.*

HARRY BRANDT, B.A., Washington, 1947; M.S., Columbia, 1949. Post-war monetary and credit policy (1946-1950). 1952. *Columbia.*

ROBERT G. CONNORS, B.S., St. Louis, 1945; M.S., 1947. Lessons for American monetary policy from analogous English experience. 1952. *St. Louis.*

HELEN P. CRAFTON, M.A., Michigan, 1948. An historical aand theoretical study of regional interest rate differentials. 1952. *Michigan.*

JAY A. CRAVEN, B.A., Antioch, 1941; M.A., Arizona, 1947. Central banking in Argentina. 1952. *Southern California.*

PAUL G. DARLING, B.A., Yale, 1937; M.A., New York, 1947. Liquidity functions of a central bank. 1952. *Columbia.*

DAVID EASTBURN, B.A., Amherst, 1942; M.A., Pennsylvania, 1945. Real estate credit control as a selective instrument of monetary policy. 1952. *Pennsylvania.*

DAVID I. FAND, B.S., College of the City of New York, 1944; M.A., Chicago, 1950. Monetary theory of the Federal Reserve Board. 1951. *Chicago.*

MURRAY J. FRANKLIN, M.A., Michigan, 1947. An analytical, historical, and statistical study

of banking concentration in the United States, with particular reference to the period 1930-1950. 1952. *Michigan.*

TILFORD C. GAINES, B.S., Washington (St. Louis), 1948. M.A., 1948. The market for government securities. 1953. *Columbia.*

JOAN GILBERT, B.A., Radcliffe, 1946; M.A., 1948. The theory of the capital markets. 1951. *Harvard.*

BURTON H. GILDERSLEEVE, B.S., Iowa, 1926; M.B.A., New York, 1933. Trends toward monopoly in banking. 1952. *Ohio State.*

RAYMOND W. HEATWOLE, B.S., Virginia, 1939; M.A., 1947. South Carolina state cash depositories. 1953. *Virginia.*

JAMES HELLIE, B.S., Minnesota, 1926; M.A., 1945. Interest rate policy in the war and postwar periods. 1952. *Minnesota.*

EDWARD S. HERMAN, B.A., Pennsylvania, 1945; M.A., 1948. Federal Reserve Board's case against Transamerica Corporation. 1952. *California.*

HERBERT D. HOOVER, B.A., Michigan State, 1946; M.A., 1948. The home loan bank system. 1952. *Harvard.*

HENRY J. JAROCHE, M.A., Wayne, 1949. The influence of contemporaneous monetary theory on United States Senate in banking legislation from the first Congress to 1860. 1952. *Michigan.*

HARRY G. JOHNSON, B.A., Toronto, 1943; B.A. (Cantab.), 1946; M.A., Toronto, 1947; M.A., Harvard, 1949; M.A. (Cantab.), 1951. Changes in British joint-stock banking, 1930-1950. 1952. *Harvard.*

JAMES A. KOKORIS, M.A., Michigan, 1949. The role of finance and financial institutions in the economic development of Okayama, Japan, area. 1952. *Michigan.*

R. PIERCE LUMPKIN, B.A., Richmond, 1948; M.A., Harvard, 1950. Interregional balance of payments of New England, reconsidered. 1952. *Harvard.*

JOHN P. LUTZ, B.A., Amherst, 1936; M.B.A., Pennsylvania, 1938. Some problems of commercial bank reserves. 1952. *Pennsylvania.*

LAWRENCE J. MINET, B.A., Buffalo, 1948; M.S., Columbia, 1949. Changes in reserve requirements—commercial banks in the United States and foreign nations 1930-1950. 1953. *Columbia.*

HERBERT H. MITCHELL, B.S., Alabama, 1939; M.S., 1950. A history of commercial banking in North Carolina since the Civil War. 1952. *North Carolina.*

JACK N. OCKERLANDER, B.S., Eau Claire St. Teachers College, 1940; M.A., Virginia, 1949. Some aspects of Federal Reserve credit policy. 1951. *Virginia.*

CHARLES S. OVERMILLER, B.A., Ohio Wesleyan, 1947; M.A., Ohio State, 1948. The theory of monetary decentralization. 1951. *Ohio State.*

HAROLD F. RASMUSSEN, B.A., Dartmouth, 1938; M.A., Columbia, 1946. Changes in real cash balances and fluctuations in output. 1952. *Columbia.*

ANTHONY L. SANCETTA, B.A., Western Reserve, 1937; M.S., Columbia, 1939. The development of central banking in Italy. 1953. *Columbia.*

THOMAS C. SANDERS, B.A., Harvard, 1941; M.B.A., 1943. A proposal for the revision and integration of federal and state banking regulations. 1953. *Virginia.*

FRANK W. SCHIFF, B.A., Columbia, 1942. Monetary policy and the control of bank holdings of the national debt. 1952. *Columbia.*

HENRY SCHLOSS, B.A., Nebraska Wesleyan, 1946; M.B.A., Columbia, 1948. Bank for International Settlements reconsidered. 1953. *Columbia.*

WILBERT M. SCHNEIDER, B.A., Union College, 1940; M.B.A., Oklahoma, 1944. History, organization, and operation of the American Bankers Association. 1952. *Southern California.*

LEON M. SCHUR, B.A., Wisconsin, 1946. Influence exerted on the monetary authority. 1952. *Wisconsin.*

WARREN L. SMITH, M.A., Michigan, 1949. The level and maturity structure of interest rates. 1952. *Michigan.*

THOMAS I. STORRS, B.A., Virginia, 1940; M.A., Harvard, 1950. An appraisal of credit control devices. 1952. *Harvard.*

Lyell J. Thomas, B.A., Berea, 1947; M.A., Virginia, 1949. An analysis of recent proposals for the restoration of the gold standard. 1953. Virginia.

Linda W. M. Tsao, B.A., St. John's (China), 1945; M.S., Columbia, 1948. The gold problem. 1954. *Columbia.*

William A. Vogely, B.A., Kenyon, 1945; M.A., Princeton, 1947. The commodity reserve standard. 1952. *Princeton.*

Charls Walker, B.B.A., Texas, 1947; M.B.A., 1948. Security market policies of the Federal Reserve System. 1952. *Pennsylvania.*

Ernest W. Walker, B.B.A., Mississippi, 1948; M.B.A., 1948. Growth and development of consumer credit agencies of Indiana. 1952. *Indiana.*

Philip M. Webster, B.S., Wisconsin, 1947; M.S., 1948. The Bancamerica Corporation: a case study in monopoly and monopoly control in finance. 1952. *Wisconsin.*

Harold Wolozin, B.S., Tufts, 1942. Control of consumer credit in war time. 1951. *Columbia.*

Business Finance; Investments and Security Markets; Insurance

Degrees Conferred

Thomas R. Atkinson, Ph.D., Wisconsin, 1951. A survey of investment holdings of Wisconsin individuals.

Joseph S. Begando, Ph.D., Illinois, 1951. A study of refinements in the incidents of business ownership from the medieval period to the twentieth century.

Calvin H. Brainard, Ph.D., New York, 1951. Financial management of stock casualty insurance companies.

Bernadette V. Conrad, Ph.D., New York, 1950. Financial policies of the motion picture industry.

John Cowee, Ph.D., Wisconsin, 1951. Federal regulation of insurance.

Donald J. Hart, Ph.D., Wisconsin, 1951. A reappraisal of the sources of surplus profits in a sellers' market.

George E. Hassett, Jr., Ph.D., New York, 1951. Sinking funds in bonds of railroad, public utility, and industrial corporations.

William M. Howard, Ph.D., Wisconsin, 1951. The use of budgets in financial planning.

Donald L. MacDonald, Ph.D., Pennsylvania, 1951. Economic aspects of direct placement of securities with special reference to the life insurance industry.

Roderick F. McDonald, Ph.D., Northwestern, 1951. Adequacy of supply of business capital for the formation and growth of small enterprises.

Alice M. Morrison, Ph.D., Iowa State (Ames), 1950. Consumer's choice in insurance.

Fred A. Robinson, Jr., Ph.D., New York, 1951. An inquiry into the dividend practice of industrial corporations.

Oscar N. Serbein, Jr., Ph.D., Columbia, 1951. Distribution of costs in life insurance.

Edward F. Stauber, Ph.D., Catholic, 1951. Financial survey of building and loan associations in the District of Columbia in the 20th century. (Published by Catholic University Press)

Ben B. Sutton, Ph.D., Wisconsin, 1951. The rights of stockholders.

Guy W. Trump, Ph.D., Iowa, 1951. The role of the Securities Exchange Commission in corporate reorganizations.

Howard A. Ward, Ph.D., St. Louis, 1951. Automobile installment financing, 1910 to mid-1950.

Theses Completed and Accepted

Donald R. Childress, B.B.A., Southwestern, 1939; M.B.A., Pennsylvania, 1948. The taxation of life insurance companies. *Pennsylvania.*

H. Larry Wilsey, B.S., Southern California, 1944; M.A., 1946. The Securities and Exchange Commission. *Cornell.*

Theses in Preparation

Adam S. Arnold, B.S., West Virginia State, 1947; M.B.A., Wisconsin, 1948. The flow of capital since 1940. 1952. *Wisconsin.*

Herbert M. Axford, B.Com., Manitoba, 1941; M.Com., Toronto, 1947. Expansion of medium size manufacturing corporations. 1951. *Wisconsin.*

Theodore Bakerman, B.A., Washington Sq. College of N.Y.U., 1940. Life insurance on the lives of women. 1951. *Pennsylvania.*

Walter G. Becker, B.A., Loyola, 1940; M.A., 1943. Certificate, University of Grenoble (France), 1945. Investment companies. 1951. *Iowa.*

Robert T. Collins, B.S., Iowa, 1939; M.A., Southern California, 1949. The taxation of insurance companies. 1952. *Southern California.*

Francis J. Corrigan, B.S., St. Louis, 1941; M.B.A., Stanford, 1943. The New York Stock Exchange: a study in economic self-government. 1952. *St. Louis.*

William O. Cummings, B.S., Pennsylvania, 1938. Management in ordinary life insurance agencies. 1951. *Pennsylvania.*

Manuel O. Diaz, B.A., Puerto Rico, 1942; M.A., Clark, 1943. The regulation of insurance in Puerto Rico. 1952. *Pennsylvania.*

David Felix, B.A., California, 1942; M.A., 1947. Capital investment and industrialization. 1952. *California.*

Victor B. Gerdes, B.S., Texas Technological, 1947; M.S., Wisconsin, 1950. Incorporation of business enterprises. 1951. *Wisconsin.*

Herbert C. Graebner, B.S., Valparaiso, 1930; M.B.A., Northwestern, 1931. Appraising the economic value of the human life. 1952. *Pennsylvania.*

Thomas B. Graham, B.S., Southern California, 1943; M.B.A., 1947. Investment trust funds. 1952. *Ohio State.*

John Kaney Hayes, B.A., St. Louis, 1940; M.A., 1946. The economic factors involved in the management of specialized investment trusts. 1952. *St. Louis.*

Fred A. Henningsen, B.A., Montana State, 1946; M.A., 1948. The development, scope and method of New York state regulation of insurance costs. 1952. *Pennsylvania.*

Raymond C. Jancauskas, B.A., Loyola, 1936; M.A., St. Louis, 1940. Analysis of recent major Canadian investments. 1952. *Columbia.*

Richard de R. Kip, B.S., Pennsylvania, 1936. Fraternal life insurance. 1951. *Pennsylvania.*

Mildred Laverell, B.A., Vassar, 1942; M.A., Pennsylvania, 1943. Factors determining holdings of cash by industrial corporations. 1951. *Pennsylvania.*

Robert Lekachman, B.A., Columbia, 1942. Investment outlay (with case study of book and job printing). 1952. *Columbia.*

John D. Long, B.S., Kentucky, 1942; M.B.A., Harvard, 1947. Methods of insurance agency continuation. 1952. *Indiana.*

Arthur Mason, B.S., Nebraska, 1942; M.A., 1947. Development of new life insurance companies in the United States since 1925. 1952. *Pennsylvania.*

John W. McKinney, B.A., Southern Methodist, 1937; M.A., Columbia, 1947. The financing of innovation. 1952. *Columbia.*

James M. Murphy, B.S., Indiana, 1943; M.B.A., 1948. The emerging role of the mutual investment company. 1952. *Indiana.*

Donald W. O'Connell, B.A., Columbia, 1937; M.A., 1938. Loan guarantees and insurance. 1951. *Columbia.*

John Pagani, B.S., Santa Clara, 1932. Cash funds in financial reporting. 1952. *Stanford.*

Jesse F. Pickrell, B.S., North Texas State College, 1946; M.B.A., 1948. An analysis of group accident and health insurance. 1951. Pennsylvania.

John E. Pierce, B.A., Tennessee, 1943; M.S., 1948. The integration of property forms of insurance. 1952. *Pennsylvania.*

Robert E. Schultz, B.S., Southern California, 1948; M.B.A., 1949. Life insurance investments in income-producing real estate. 1952. *Pennsylvania.*

Frank J. Schwentker, B.A., Harvard, 1928. An analysis of compensation of life insurance agents. 1952. *Pennsylvania.*

DONALD SCOLES, B.S., Northwestern, 1916; M.A., Pennsylvania, 1943. Development and application of the annuity principle by U.S. legal reserve life insurance companies. 1952. *Pennsylvania.*

JOSEPH SOSHNIK, B.Sc., Creighton, 1941; M.S., Denver, 1943. A program for providing long-term capital for operations in small business. 1952. *Nebraska.*

FRANK A. YOUNG, B.B.A., Southern Methodist, 1942; M.A., Michigan, 1948. Reinsurance in life insurance. 1951. *Pennsylvania.*

Public Finance

Degrees Conferred

DAVID M. BLANK, Ph.D., Columbia, 1950. Reform of state-local fiscal relations in New York State.

SIDNEY BORDEN, Ph.D., New York, 1951. The exemption of property from taxation.

JOHN W. BOWYER, D.C.S., Indiana, 1950. Government financing of private enterprise.

GEORGE F. BREAK, Ph.D., California, 1951. Some theoretical aspects of the federal taxation of capital gains and losses.

COLIN D. CAMPBELL, Ph.D., Chicago, 1950. True property tax rates in the United States, 1922-49.

LAWRENCE D. COOLIDGE, Ph.D., Columbia, 1950. Undistributed profits taxation in Australia, 1915-1949.

JOSEPH C. ELLETT, Ph.D., Virginia, 1951. Financing emergency relief through the FERA.

ARTHUR S. FEFFERMAN, Ph.D., New School for Social Research, 1950. The tax treatment of family income.

JOSEPH A. GREENE, Ph.D., Virginia, 1951. The taxation of public utilities in Virginia.

TUN YUAN HU, Ph.D., Columbia, 1950. The federal liquor tax in the United States.

JAMES B. LUDTKE, Ph.D., Iowa, 1951. Some aspects of national debt management.

ALFRED D. MORGAN, Ph.D., Harvard, 1951. Fiscal anatomy of wartime Japan, 1937-1945.

ERNEST F. PATTERSON, Ph.D., Texas, 1951. The finances of the national government of Argentina.

LOUIS SIEGELMAN, Ph.D., Pennsylvania, 1951. Development and analysis of the Pennsylvania public school subsidy 1834-1949.

GEORGE W. THATCHER, Ph.D., Wisconsin, 1951. Taxation of property in Ohio.

LAWRENCE E. THOMPSON, Ph.D., Harvard, 1951. Investment capacity and the personal income tax.

EARL K. TURNER, Ph.D., Kentucky, 1951. Design of an assessors' manual for a particular state.

G. CARL WIEGAND, Ph.D., Northwestern, 1951. Fiscal developments in postwar Germany and their economic, political, and monetary backgrounds.

Theses Completed and Accepted

HARVEY E. BRAZER, B.Com., McGill, 1943; M.A., Columbia, 1947. Coordination in Canadian federal finance. *Columbia.*

JOE S. FLOYD, JR., B.S., Florida, 1943; M.A., North Carolina, 1946. Interlocal tax differentials, with special reference to their effects on hosiery, furniture and tobacco firms in selected industrial states. *North Carolina.*

DANIEL M. HOLLAND, B.A., Columbia, 1941. The corporation tax as a personal tax. *Columbia.*

Theses in Preparation

MORRIS BECK, B.A., Pennsylvania State, 1942; M.A., Columbia, 1947. Tax treatment of business losses. 1952. *Columbia.*

TAYLOR L. BURTON, B.S., Oklahoma, 1942; M.S., 1948. Pressure and control exercised through the use of the grant-in-aid. 1952. *Columbia.*

LANG L. CANTRELL, B.A., California (Los Angeles), 1939; M.A., Southern California, 1948. The modernization of American property taxation. 1952. *Southern California.*

MARGARET M. CHARLESWORTH, B.Com., University of Queensland, Australia, 1942; M.S., Wisconsin, 1948. Incidence and effects of taxation under monopolistic competition. 1952. *Wisconsin.*

ALPHA CHUNG-I CHIANG, B.A., St. John's, 1946; M.A., Columbia, 1948. Income taxation in the federal state: a study of jurisdictional conflict. 1952. *Columbia.*

CHARLES D. CLEMENT, B.A., Piedmont, 1946. Trends in property tax exemption. 1953. *Virginia.*

LORNE D. COOK, M.A., Michigan, 1949. The economics of multilevel public finance. 1952. *Michigan.*

L. JOSEPH CRAFTON, M.A., Michigan, 1948. The effects of the corporate income tax on the quantity and types of investable funds. 1952. *Michigan.*

JOHN M. CULBERTSON, M.A., Michigan, 1947. The theory and history of public debt. 1952. *Michigan.*

DONALD J. DALY, B.A., Queens University, Canada, 1943; M.A., 1948. Forecasting Canadian federal tax yields. 1952. *Chicago.*

LENORE FRANE, M.A., Michigan, 1947. Depreciation: an aspect of net income for tax purposes. 1952. *Michigan.*

HENRY J. FRANK, B.S., Columbia, 1938; M.A., Rutgers, 1947. Municipal-federal fiscal relations. 1953. *Columbia.*

HUBERT H. FRISINGER, M.A., Michigan, 1948. Michigan state highway expenditure policy. 1952. *Michigan.*

JOHN G. GODAIRE, B.S., St. Louis, 1943; M.A., Harvard, 1950. St. Louis—an economic exploration of large city finance. 1951. *Harvard.*

RUDYARD B. GOODE, B.A., Davis-Elkins, 1947. The evolution of the tax system of West Virginia. 1953. *Virginia.*

HOWARD S. GORDMAN, M.A., Yale, 1936. Highway taxation. 1952. *Michigan.*

JOHN A. GRONOUSKI, JR., B.Ph., Wisconsin, 1942; M.Ph., 1947. Valuation of railroads for tax purposes. 1952. *Wisconsin.*

ERIC J. HANSON, M.A., Alberta. Financial history of the provincial government of Alberta. 1952. *Clark* (Worcester).

PEGGY HEIM, B.A., Duke, 1945; M.A., 1946. Financing federal irrigation projects through user charges. 1952. *Columbia.*

WILLIAM H. HICKMAN, B.S., Kansas State, 1941; M.A., Stanford, 1949. The burden of California taxes. 1952. *Stanford.*

JAMES E. JENSEN, B.A., Wisconsin, 1948; M.A., 1949. Federal government debt policy and its inflationary effect. 1952. *Wisconsin.*

JAMES W. JOHNSTON, B.A., Western Ontario, 1947; M.A., Brown, 1949. Death and gift taxes in Canada. 1952. *Indiana.*

CHARLES H. KAHN, B.A., Vanderbilt, 1947; M.A., Wisconsin, 1950. Income sensitivity of state tax yields. 1952. *Wisconsin.*

BENJAMIN J. KATZ, B.A., Brooklyn, 1946; M.A., Harvard, 1949. State taxation in New Hampshire. 1952. *Harvard.*

MURRAY C. KEMP, B.Com., University of Melbourne, 1946; B.A., 1947; M.A., 1949. The shifting and incidence of taxation in general equilibrium models. 1952. *Johns Hopkins.*

HENRY K. KRAUSKOPF, B.B.A., Cincinnati, 1940; M.A., Columbia, 1949. The Reconstruction Finance Corporation in war and peace, 1942-49. 1951. *Columbia.*

DONOR M. LION, B.A., Harvard, 1945; M.A., Buffalo, 1948. The federal debt and economic activity, 1900-1950. 1951. *Harvard.*

DALE C. MARCOUX, B.S., Kansas, 1929; M.B.A., 1937. The level of the federal personal income tax exemption. 1953. *Minnesota.*

THOMAS E. MCMILLAN, JR., B.A., Texas, 1947; M.A., 1948. The introduction of an income tax in Texas. 1952. *Wisconsin.*

HARLAN B. MILLER, An analysis of Colorado business taxes. 1952. *Colorado.*

FRANK E. MORRIS, M.A., Michigan, 1949. Criteria for government lending. 1952. *Michigan.*

Lawrence B. Myers, B.S., Temple, 1945; M.A., Wisconsin, 1947. Some aspects of Swedish public finance. 1952. *Wisconsin.*

Chester Myslicki, M.A., Michigan, 1949. Problems of debt management. 1952. *Michigan.*

Leon J. Quinto, B.A., Columbia, 1946; M.A., 1948. The municipal income tax: the answer to New York City's post-war financial problems? 1952. *Columbia.*

Raymond L. Richman, L.L.B., Chicago-Kent College of Law, 1940; M.A., Chicago, 1948. The economic effects of the tax treatment of capital gains and losses in the United States and Great Britain. 1952. *Chicago.*

Robert J. Schier, B.A., Rochester, 1943; M.P.A., Wayne, 1949. A reappraisal of the concept, the potentialities, and the limitations of fiscal policy in the United States. 1951. *Southern California.*

Morton J. Schussheim, B.A., Western Reserve, 1947; M.A., Harvard, 1949; M.P.A., 1949. The revenue-expenditure pattern of Massachusetts and its political subdivisions. 1951. *Harvard.*

Eli Schwartz, B.S., Denver, 1943; M.A., Connecticut, 1948. Studies in redistribution of income through public finance. 1952. *Brown.*

Francis J. Shannon, B.A., Notre Dame, 1947; M.P.A., Wayne, 1951. An analysis of various statewide programs to improve local assessments. 1951. *Kentucky.*

Sherman Shapiro, B.A., Queens; M.A., Chicago, 1951. A theory of public expenditures: state-local expenditures in the United States. 1952. *Chicago.*

Robert B. Shulman, M.A., Michigan, 1951. Some cyclical aspects of selected state taxes and tax and expenditure systems. 1952. *Michigan.*

Arnold M. Soloway, B. A., Brown, 1942; M.A., 1948. The purchase tax and fiscal policy. 1952. *Harvard.*

Lee C. Soltow, B.A., Wisconsin, 1948; M.A., 1949. State income tax yields. 1952. *Wisconsin.*

Richard E. Speagle, B.A., California (Los Angeles), 1946; M.A., 1947; M.A., Princeton, 1949. Comparative public debt policy, 1939-1949, the United States, Canada, and United Kingdom. 1953. *Princeton.*

Frederick Stocker, B.A., Lehigh, 1947. Local non-property taxes. 1952. *Cornell.*

Goldie Stone, B.A., Hunter, 1943; M.A., New York, 1945. A study of the relief provisions of Section 722 of the Excess Profits Tax law. 1953. *Columbia.*

Richard K. Stuart, B.S., Rhode Island State, 1938; M.S., 1940. Financing public improvements in Maine. 1951. *Pennsylvania.*

Clara G. Sullivan, B.A., Mt. Holyoke, 1936; M.A., Columbia, 1942. The value-added tax. 1952. *Columbia.*

Milton C. Taylor, B.S.A., British Columbia, 1939; M.S.A., 1946. The Michigan sales tax with particular reference to administrative problems. 1952. *Wisconsin.*

Carey C. Thompson, B.A., Texas, 1928; M.A., 1931. Financial aspects of unemployment compensation. 1951. *North Carolina.*

Wilbur R. Thompson, M.A., Michigan, 1949. Institutional aspects of fiscal policy: a regional approach. 1952. *Michigan.*

Norman B. Ture, M.A., Chicago, 1947. Federal debt policy during the war years. 1952. *Chicago.*

James E. Walter, B.A., Duke, 1942; I.A., Harvard, 1943. The problem of the national debt. 1952. *California.*

Ulric H. Weil, B.Com., McGill, 1945. Enforcement of the individual income tax: theory, practice, and performance. 1951. *California.*

Robert H. Wessel, B.A., Cincinnati, 1946; M.A., 1946. A re-examination of the theory of the incidence of taxation. 1952. *Cincinnati.*

Milton Wilson, B.A., West Virginia State, 1937; M.C.S., Indiana, 1945. The technical determination of net income tax liability under the laws of the United States and selected states. 1951. *Indiana.*

Robert L. Winestone, B.A., Oregon, 1939; M.A., 1942. The undistributed profits tax as a counter-cyclical device. 1952. *Northwestern.*

Jesse D. Winzenreid, B.S., Wyoming, 1945; M.S., Denver, 1946. The state of Wyoming: a history and evaluation of financial administration. 1952. *New York.*

Laurence N. Woodworth, B.A., Ohio Northern, 1940; M.S., Denver, 1943. United States taxation of income earned abroad. 1952. *New York.*

Chao-Hsun Wu, B.A., St. John's, Shanghai, 1945; M.A., Illinois, 1948. Inter-jurisdictional fiscal relations in federal and unitary countries. 1952. *Columbia.*

Pete Zidnak, B.S., Loyola (Los Angeles), 1949; M.A., Southern California, 1950. An economic appraisal of the Reconstruction Finance Corporation. 1953. *Southern California.*

International Economics

Degrees Conferred

Martha S. Atkinson, Ph.D., Wisconsin, 1951. The Benelux economic union: problems and achievements.

Donald G. Badger, Ph.D., George Washington, 1951. The balance of payments: a tool of economic analysis.

Jack F. Bennett, Ph.D., Harvard, 1951. Theory and practice of international payments agreements.

Octavio A. Dias Carneiro, Massachusetts Institute of Technology, 1951. Study on the theory of international economic organization.

Gabriel F. Cazell, Ph.D., Minnesota, 1950. A postwar tin policy for the United States.

Yehia El-Molla, Ph.D., Harvard, 1951. Major aspects of American-Egyptian economic relationships.

Wayne F. Geisert, Ph.D., Northwestern, 1951. Transport costs in the theory of international trade.

John Hunter, Ph.D., Harvard, 1951. A case study of economic development of an underdeveloped country: Cuba, 1899-1935.

William T. Kelley, Ph.D., Pennsylvania, 1951. Wheat under control: a study of international wheat agreements.

John M. Letiche, Ph.D., Chicago, 1951. Studies in the theory of the international mechanism of adjustment.

James R. Maddox, Ph.D., Illinois, 1951. International balance of payments adjustments under the gold standard.

Kathryn McNamara Mitchell, Ph.D., Pittsburgh, 1951. United States canned foods in international trade.

Ervin Miller, Ph.D., Pennsylvania, 1951. Exchange rates and practices in a world of abridged competition.

Ilse Mintz, Ph.D., Columbia, 1951. The decline in quality of American investments, 1920-1930.

Edith Penrose, Ph.D., Johns Hopkins, 1951. The economics of the international patent system.

Alfred S. Ray, Ph.D., Michigan, 1951. The problem of economic development in backward areas with special reference to Iran.

Franklin R. Root, Ph.D., Pennsylvania, 1951. The international trade of Great Britain—a study in economic interdependence.

Zaki M. Shabana, Ph.D., Wisconsin, 1951. Competitive situation of Egyptian cotton.

Delbert A. Snider, Ph.D., Chicago, 1951. Monetary, exchange, and trade problems in postwar Greece.

Theses Completed and Accepted

Godfrey Briefs. Shifting patterns of trade. *Harvard.*

Nihad Ibrahim—Pasha, Baccalaurist, Aleppo, 1941; in philosophy, 1942; Licence in Law, Beirut, 1942. Foreign trade and the Syrian economy. *Columbia.*

Theses in Preparation

Carl E. Abner, B.A., Queens University (Ontario, Canada), 1942; M.A., Columbia, 1948. Commercial policy under the international trade organization. 1951. *Columbia.*

HOWARD K. AMMERMAN, B.S., Kentucky, 1941; M.A., Chicago, 1950. Canadian devaluation, 1949. 1952. *Chicago.*

DANIEL ARRILL, B.S.S., College of the City of New York, 1942; M.A., Columbia, 1948. The terms of trade, a theoretical and statistical analysis. 1952. *Columbia.*

JACK N. BEHRMAN, B.S., Davidson, 1943; M.S., North Carolina, 1945; M.A., Princeton, 1950. The role of government in international financial affairs of the United States since World War II. 1952. *Princeton.*

PHILIP W. BELL, B.A., Princeton, 1947; M.A., California, 1948; M.A., Princeton, 1950. The sterling area as a multilateral trading system and its problems, 1946-1950. 1952. *Princeton.*

CHARLES S. BENSON, B.A., Princeton, 1943; M.A., Columbia, 1948. United States imports of primary commodities since 1870. 1952. *Columbia.*

RAGHBIR S. BHATIA, B.A., Punjab, 1945; M.A., Indiana, 1950. Role of foreign investment in the economic development of South Asia. 1953. *Columbia.*

HARRY R. BIEDERMAN, B.A., California (Los Angeles), 1948; M.A., Columbia, 1949. International aspects of the U.S. agricultural policies. 1952. *Columbia.*

JAHANGIR AMOUZEGAR, Licenciate, University of Tehran, 1941; M.A., Washington, 1948. Iran and the Point Four Program. 1953. *California* (Los Angeles).

RICHARD G. BIRNBERG, B.A., Columbia, 1941; M.A., Chicago, 1948. Theory of a persistent "Dollar Shortage" and a stable multilateral open trading system. 1952. *Chicago.*

MARCUS C. BRUHN, B.Ed., Eau Claire Teachers College, 1934; M.A., Minnesota, 1942. Swedish balance of payments, 1920-1950. 1952. *Wisconsin.*

BUE BRUN, B.A., University of Oslo, 1943; M.A., Fletcher School, 1948. International maritime policy. 1952. *Fletcher School of Law and Diplomacy.*

RONDO E. CAMERON, B.A., Yale, 1948; M.A., 1949. French foreign investment, 1815-1870. 1951. *Chicago.*

ROBERTO DE OLIVEIRA CAMPOS, Philosophy and Classical Letters, Brazil, 1932; M.A., George Washington, 1947. Terms of trade and economic development. 1952. *Columbia.*

WILLIAM B. DALE, B.A., Michigan, 1944; M.A., Fletcher School, 1947. Full employment and American foreign policy. 1952. *Fletcher School of Law and Diplomacy.*

ROBERT W. DAVENPORT, B.A., Washington, 1943; M.A., Fletcher School, 1944. Soviet economic relations with Iran. 1952. *Columbia.*

NAZIH A. DEIF, B.Com., Fouad I University (Egypt), 1944. Egypt's post war II balance of trade. 1951. *Chicago.*

M. AUDREY DICKERSON, B.S., Miner Teachers College, 1940; M.A., Catholic, 1941. Western Europe's balance of payments during the post-war recovery period. 1952. *Columbia.*

FRANCOIS M. DICKMAN, B.A., Wyoming, 1947; M.A., Fletcher School, 1948. The economic foreign policy of the United States in Western Europe from 1945-48. 1952. *Fletcher School of Law aand Diplomacy.*

WILLIAM A. DYMSZA, B.A., Pennsylvania State, 1943; M.B.A., Pennsylvania, 1948. U.S. private long-terms investments in South America: an inquiry into their economic effects upon the area. 1951. *Pennsylvania.*

HARRY C. MACC. EASTMAN, B.A., Toronto, 1947; M.A., Chicago, 1949. Postwar Canadian commercial policy. 1952. *Chicago.*

MAURICE C. ERNST, B.A., Yale, 1948. Belgium's monetary and foreign exchange policy, 1944-1951. 1953. *Columbia.*

KURT FLEXNER, B.S., Johns Hopkins, 1946. The European Payments Union: its aims and prospects.. 1952. *Columbia.*

GEORGE P. FOUSEK, B.A., Cambridge, 1946; M.A., Columbia, 1947. Devaluation of the pound. 1953. *Columbia.*

JOHN O. GALLAGHER, B.A., Tufts, 1943; M.A., Fletcher School, 1948. The London Monetary Conference of 1933. 1951. *Fletcher School of Law and Diplomacy.*

EDITH F. GALPERT, B.A., Reed, 1944; M.A., Columbia, 1946. International diffusion of industrial technique. 1953. *Columbia.*

FRANK H. GOLAY, B.S., Central Missouri State Teachers College, 1936; M.A., Chicago, 1948. The evolution of payments agreements in Western Europe under the E.C.A. 1951. *Chicago.*

JOHN F. GRAHAM, B.A., British Columbia, 1947; M.A., Columbia, 1948. Criteria for exchange rate adjustments. 1952. *Columbia.*

VERNON H. GRIGG, B.Com., British Columbia, 1943; M.A., 1949. International price structure in petroleum. 1952. *Massachusetts Institute of Technology.*

FRANCES A. GULICK, B.A., Linfield, 1940; M.A., Fletcher School, 1941. United States economic policy toward China: an evaluation of economic policy and practice in relation to our objectives. 1952. *Fletcher School of Law and Diplomacy.*

ROBERT W. HARRINGTON, M.A., Iowa, 1948. Partnership control of international equity capital. 1952. *Iowa.*

JOSEPH A. HASSON, B.A., Washington, 1943; M.B.A., Chicago, 1947; M.A., 1950. Stabilization attempts in a "Dependent" economy and the effects on its balance of payments—a case study of Australia. 1951. *Chicago.*

HUGH K. HAWK, B.A., Birmingham-Southern, 1941; M.A., Virginia, 1943. International aspects of the aluminum industry. 1952. *Virginia.*

ROLF HAYN, B.A., Indiana, 1944; M.A., 1948. Peruvian foreign exchanges, 1929-1950. 1952. *Wisconsin.*

CHARLES HOFFMAN, B.A., Queens, 1942; M.A., Columbia, 1947. International industrial efficiencies and comparative cost theory. 1951. *Columbia.*

CHI-MING HOU, L.L.B., Catholic, Peiping, 1945; M.A., Oregon, 1949. A comparative study of the role of foreign capital in China and India's economic development. 1953. *Columbia.*

WILLIAM A. JARACZ, B.S., Harvard, 1946; M.B.A., Pennsylvania, 1948. Foreign commercial policy of Poland. 1952. *Pennsylvania.*

SALAMON S. J. KAGAN, Diplom-Ingenieur, Berlin, 1931; M.A., American, 1949. Domestic obstacles to economic development of backward countries. 1952. *Columbia.*

MARVIN M. KRISTEIN, B.A., College of the City of New York, 1947; M.A., Columbia, 1949. International capital movements in the U.S., 1879-1900. 1953. *Columbia.*

RICHARD S. LANDRY, B.A., Amherst, 1938; M.A., Chicago, 1941. Unfair competition in foreign trade. 1951. *Chicago.*

WILL E. MASON, B.A., Pacific, 1935; M.A., Washington, 1942; M.A., Princeton, 1947. Inductive verifications of the classical theory of adjustment to unilateral capital transfers. 1951. *Princeton.*

JOHN MCKNIGHT, B.S.S., College of the City of New York, 1939; M.A., Columbia, 1947. United States-Canadian trade, 1932-1938. A study in the income and expenditure approach to the theory of international trade. 1953. *Columbia.*

GILBERT M. MELLON, M.A., Pittsburgh, 1949. Some economic implications of the Point Four idea. 1951. *Pittsburgh.*

KRISHNA MOHAN, B.A., Delhi, 1945; M.A., Madras, 1947. Japanese balance of payments, 1900-1910. 1951. *Wisconsin.*

SUBIMAL MOOKERJEE, M.A., Calcutta, 1946; M.A., Harvard, 1950. Sterling area: its evolution and mechanism. 1951. *Harvard.*

RUSSELL J. MORRISON, B.A., Saskatchewan, 1944; M.A., Toronto, 1947. Trends in Canadian wheat policy. 1951. *Chicago.*

NORMAN W. MOSHER, B.A., Maine, 1943; M.A., 1947; M.A., Fletcher School, 1948. State trading and Great Britain: a case study of state trading, methods of its implementation, the effects on the national economy, and its relation to multilateral trade. 1952. *Fletcher School of Law and Diplomacy.*

J. E. MOYER, B.S., Illinois, 1947; M.S., 1948. Postwar United States-Italian economic relationships. 1951. *Illinois.*

JOHN E. MURPHY, B.S., College of the City of New York, 1942; M.A., Columbia, 1948. An appraisal of the sterling area (with special reference to Great Britain's role in the area). 1952. *Columbia.*

MAXWELL OBST, Intra-European movements of capital in the postwar period. 1952. *Chicago.*

ROBERT W. OLIVER, B.A., Southern California, 1943; M.A., 1947; M.A., Princeton, 1950. The International Bank for Reconstruction and Development. 1953. *Princeton.*

Shantilal N. Patel, B.Com., Sydenham, 1946; M.B.A., Pennsylvania, 1948. Commercial relations between India and Pakistan. 1952. *Pennsylvania.*

Henry A. Peck, B.A., Tufts, 1942; M.A., Fletcher School, 1947. Freedom, planning, and international trade. 1951. *Fletcher School of Law and Diplomacy.*

Richard Perlman, B.A., Cornell, 1947; M.A., Columbia, 1949. New trends in the theory of international capital movements. 1952. *Columbia.*

Neal Potter, B.A., Minnesota, 1937; M.A., 1940. Geneva Trade Agreements and the International Trade Organization. 1951. *Chicago.*

Otto R. Reischer, B.A., Michigan, 1946; M.A., Columbia, 1948. Studies in Soviet foreign economic policy. 1952. *Columbia.*

Romney Robinson, B.A., McMaster, 1948; M.A., Toronto, 1949. Discrimination in international trade. 1952. *Massachusetts Institute of Technology.*

Alexander M. Rosenson, B.S., California, 1937; M.A., 1938. Aspects of British postwar external finance. 1951. *Chicago.*

Stephen W. Rousseas, B.S., Columbia, 1948; M.A., 1949. The pure theory of the gains from international trade. 1952. *Columbia.*

Antioco Sacasa, B.A., Institute Nacional, Leon, Nicaragua, 1939; B.S., 1939; Doctor en Derecho, Universidad de Leon, Nicaragua, 1939; M.A., Ohio State, 1944. Central America: economic analysis. 1952. *Minnesota.*

Wilson E. Schmidt, B.S., Maryland, 1947; M.A., Pittsburgh, 1948. Multiple exchange rates in Latin America. 1952. *Virginia.*

Mary A. Shulman, M.A., Michigan, 1948. The changing pattern of foreign United States trade—prewar and postwar, and its relationship to location theory. 1952. *Michigan.*

Gerald Sirkin, B.A., Harvard, 1942; M.A., Columbia, 1948. The effects of the British devaluation of the pound. 1952. *Columbia.*

Herman T. Skofield, B.A., New Hampshire, 1947; M.A., Fletcher School, 1948. Private foreign investment. 1952. *Fletcher School of Law and Diplomacy.*

David W. Slater, B.Com., Manitoba, 1942; B.A., Queens University (Canada), 1947; M.A., Chicago, 1950. Production adaptations in international economic adjustments. 1952. *Chicago.*

Morton Solomon, B.A., Chicago, 1941; M.A., Harvard, 1948; M.P.A., 1948. Economic underdevelopment in free economies. 1951. *Harvard.*

Augustus W. Springer, Jr., B.A., Michigan, 1946; M.A., Virginia, 1951. Recovery of foreign trade in the postwar economy of Japan. 1952. *Virginia.*

Nicolas Spulber, Baccalaureat, Jassy, 1930; M.A., University of Bucharest, 1934; M.A., New School for Social Research, 1950. On the economic relations between the USSR and the eastern European countries after World War II. *New School for Social Research.*

Irving Stone, B.S.S., College of the City of New York, 1946; M.A., Columbia, 1948. Changes in British overseas investment, 1939-1945. 1952. *Columbia.*

Wei-Tseng Sze, B.A., St. John's (Shanghai), 1946; M.L., Pittsburgh, 1950. International trade in wheat. 1951. *Pittsburgh.*

Violette E. Thouvenin, B.A., Hunter, 1944; M.A., Columbia, 1945. Currency convertability in Western Europe. 1952. *Columbia.*

Donald M. Troup, B.S., Mt. St. Mary's, 1943; M.A., Catholic, 1948. Lend lease: a new approach to the problems of intergovernmental debts. 1953. *Catholic.*

Naomi Waxman, B.A., Chicago, 1940. Forms and effects of industrialization in the development of under-developed areas. 1952. *Columbia.*

Mervyn Weiner, B.Com., McGill, 1943; B.Ph., Oxford, 1948. Price stabilization of internationally traded primarry commodities. 1952. *Johns Hopkins.*

Leonard W. Weiss, B.S., Northwestern, 1945; M.A., Columbia, 1949. The British colonies in the sterling area balance of payments. 1952. *Columbia.*

Leland B. Yeager, B.A., Oberlin, 1948; M.A., Columbia, 1949. An evaluation of freely fluctuating exchange rates. 1953. *Columbia.*

Business Administration

Degrees Conferred

George A. Ballentine, Ph.D., Columbia, 1951. Sales quotas—their use in planning sales activities.

Albert L. Bell, Ph.D., Pennsylvania, 1951. A critical analysis and evaluation of the functioning of fixed capital accounting in its relationship to profit measurement during periods of price level changes.

Thornton F. Bradshaw, D.C.S., Harvard, 1951. Developing men for controllership.

Stanley E. Bryan, D.C.S., Indiana, 1950. Program for materials management.

James D. Butterworth, Ph.D., Northwestern, 1951. A study of the changes in the volume of fresh fruits and vegetables handled by middlemen operating in the Chicago South Water Market, 1938-1949.

William F. Crum, Ph.D., Texas, 1951. A study of the force and effect of the accounting research bulletins of the American Institute of Accountants on the published corporate annual reports of 665 corporations.

W. Arthur Cullman, Ph.D., Ohio State, 1951. The marketing of tobacco products.

William R. Davidson, Ph.D., Ohio State, 1951. Use, productivity, and allocation of space resources in department stores.

Armand V. Feigenbaum, Ph.D., Massachusetts Institute of Technology, 1951. Membership relationship problems in the announced-purpose centered aggregation.

Franciscius X. Harrison, Ph.D., Iowa, 1951. Preparation and use of the organization manual.

Milan R. Karas, Ph.D., Ohio State, 1951. The contributions made by wholesalers to the economy of Hamilton County, Ohio.

Henry A. Kriebel, Ph.D., Columbia, 1951. Case studies on the adequacy of the amount of reported depreciation charges in a period of rising prices.

James B. Lackey, Jr., D.C.S., Harvard, 1950. Transportation-advertising 1940-1948.

Paul R. Lawrence, D.C.S., Harvard, 1950. A case study of the human aspects of introducing a new product into production.

Elzy V. McCollough, Jr., Ph.D., Iowa, 1951. An evaluation of proposals to reinstate fully amortized emergency war facilities when they are useful for post-war operations.

Joseph P. McKenna, Ph.D., Harvard, 1951. Demand for durable consumer goods.

Stuart B. Mead, D.C.S., Indiana, 1950. A study of special post war reserves of 134 manufacturing corporations.

Frank H. Mossman, Ph.D., Northwestern, 1951. The training of salesmen in machine tool manufacturing companies.

Thomas R. Navin, D.C.S., Harvard, 1950. History of Whitin Machine Works.

William J. Parish, D.C.S., Harvard, 1950. History of Charles Ilfeld Company.

John M. Rathmell, Ph.D., Pennsylvania, 1951. The commercial exhibit as a marketing device.

Jack S. Schiff, Ph.D., New York, 1951. Sales training—the measurement of its effectiveness.

Carl B. Strand, Ph.D., Iowa, 1951. An analysis of the objectives and methods of sales training in American manufacturing enterprises.

Edward R. Willett, Ph.D., Harvard, 1951. Radio parts distribution industry in New England.

Francis A. Wingate, Ph.D., Ohio State, 1950. A study of price formation at the retail level with special reference to Syracuse, New York.

Abraham Zaleznik, D.C.S., Harvard, 1951. Foreman training.

Mostafa H. Zoheir, Ph.D., Iowa, 1951. Development of major approaches to the study of marketing.

Theses Completed and Accepted

Chris Argyris, B.A., Clark, 1947; M.A., Kansas, 1949. A study of a pattern of managerial leadership. *Cornell.*

Robert C. Austin, B.A., Tennessee, 1940; M.A., Harvard, 1942. Marketing problems in U.S. cigarette tobacco. *Harvard.*

James Coogan, B.A., Harvard, 1942; M.A., 1947. Sales tax in the Soviet Union. *Harvard.*

Felician Foltman, B.S., Oswego State Teachers College, 1940; M.S., Cornell, 1947. Factors bearing on supervisory morale. *Cornell.*

Donald C. Johnson, B.A., Harvard, 1946; M.B.A., Indiana, 1951. Effects of taxation and non-financial motivation on compensation and incentives for industrial executives. *Indiana.*

Louis R. Salkever, B.A., Pennsylvania, 1936. Toward a theory of occupational wage differentials. *Cornell.*

Charles M. Williams, B.A., Washington and Lee, 1937; M.B.A., Harvard, 1939. Cumulative voting for corporate directors. *Harvard.*

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Robert N. Anthony, B.A., Colby, 1938; M.B.A., Harvard, 1940. The administrative control of research. 1951. *Harvard.*

Gordon G. Barnewall, B.S., Colorado, 1947; M.B.A., Ohio State, 1948. An analysis of shoppinng centers in the Washington, D.C., trading area. 1951. *Ohio State.*

Charles E. Bastable, Jr., B.S., Columbia, 1938; M.S., 1939. The presentation of accounting to general students of business. 1952. *Columbia.*

James L. Bayless, B.A., Kansas State Teachers College, 1936; M.A., Iowa, 1941. The changing role of the wholesale grocer in the Iowa market. 1952. *Iowa.*

Donald R. Booz, B.A., Williams, 1942; M.B.A., Harvard, 1947. The Jewel Tea Company, 1951. *Harvard.*

Edward H. Bowman, B.S., Massachusetts Institute of Technology, 1948; M.B.A., Pennsylvania, 1949. Organizational problems in executive job evaluation and salary administration. 1952. *Ohio State.*

William E. Breese, B.Ed., Wisconsin State Teachers College, 1943; M.A., Iowa, 1947. Consumer credit as a phase of department store service policy. 1952. *Iowa.*

Chao Sheng Chen, M.A., Iowa, 1949. Impact of the break even point analyses. 1952. *Iowa.*

C. Roland Christensen, B.A., Iowa, 1941; M.B.A., Harvard, 1943. Providing for succession of management in small companies. 1951. *Harvard.*

William L. Claff, B.A., Harvard, 1939; M.B.A., 1941. Study of the administrative problems of a company operated group medical department free for employees and dependents. 1951. *Harvard.*

Newel W. Comish, B.S., Oregon, 1946; M.B.A., Ohio State, 1948. Markdowns in department stores. 1952. *Ohio State.*

Thomas P. Czubiak, B.A., Pennsylvania State, 1941; M.A., California (Los Angeles), 1946; M.B.A., Harvard, 1948. The cost aspects of quality control. 1951. *Harvard.*

Keith Davis, B.B.A., Texas, 1935; M.B.A., 1941. Channels of executive communication. 1952. *Ohio State.*

David W. Day, B.E.E., Minnesota, 1946; M.A., Iowa, 1948. The mathematical determination of theoretical retail trading areas. 1951. *Iowa.*

William F. Dunn, A.A., Springfield Jr. College, 1942; B.S., Illinois, 1947; M.S., 1949. The importance of working relationships in the effective administration of industrial engineering techniques. 1951. *Harvard.*

William C. Emory, B.S., Ohio State, 1947; M.B.A., 1948. Expense control in department stores. 1951. *Ohio State.*

Robert B. Fetter, B.S., Virginia Polytechnic Institute, 1947; M.B.A., Indiana, 1949. Levels and methods of compensation and incentives for industrial executives. 1952. *Indiana.*

Isadore Fine, B.S., Rhode Island State, 1942; M.S., Columbia, 1947. Retail trade area measurement. 1952. *Columbia.*

Edwin B. Flippo, B.S., Missouri, 1947; M.B.A., Ohio State, 1948. Analysis of methods of sustaining profit-sharing plans through profitless years. 1952. *Ohio State.*

WILLIAM M. FOX, B.B.A., Michigan, 1947; M.B.A., 1949. Reaching agreement in groups under various types of leadership. 1952. *Ohio State.*

JOHN F. L. GHIARDI, B.A., Sacred Heart Seminary, 1939; M.S., Catholic, 1942. Some analytical consideration of recent trends in profits of manufacturing corporations in the United States. 1953. *Catholic.*

DONALD F. GOSS, B.A., Michigan State, 1942; M.A., 1947. Social accounting: the use of a system of double-entry accounts for the presentation of aggregate data concerning the income and wealth of a national economy. *Michigan.*

WILLIAM L. HAEBERLE, B.S., Indiana, 1943; M.S., 1947. A study of relations between motor car manufacturers and dealers. 1952. *Indiana.*

CYRIL C. HERRMANN, B.A., North Illinois State Teachers, 1942; M.B.A., Stanford, 1948. Problems of new enterprises—a case study. 1952. *Harvard.*

FRIEND R. HOAR, B.S., Northwestern, 1941; M.B.A., 1945; M.A., Harvard, 1948. Integration in marketing. 1952. *Harvard.*

EDWIN R. HODGE, B.S., Indiana, 1938; M.B.A., Northwestern, 1939. Marketing of outboard motors. 1951. *Indiana.*

STANLEY C. HOLLANDER, B.S., New York, 1941; M.A., American, 1946. The one price system in American retailing and the extent and nature of variations therefrom. 1953. *Pennsylvania.*

FREDERICK E. HORN, B.S., Akron, 1933; M.S., Columbia, 1936. The recoupment theory of business income. 1952. *Columbia.*

MARY L. INGBAR, B.S., Radcliffe, 1946; M.A., 1948. The factors underlying the relationship between product cost and selling price: a case study. 1951. *Harvard.*

CHARLES E. JOHNSON, B.B.A., Minnesota, 1942; M.B.A., 1948. The concept and measurement of business income. 1952. *Minnesota.*

SIMON LOPATA, B.A., Brooklyn, 1938; M.A., 1940. Testing of commodities through actual uses; implications of such testing to the field of marketing. 1953. *Columbia.*

GEORGE E. MARTIN, B.S., Illinois, 1946; M.S., 1948. Locational factors as a competitive force in retailing. 1952. *Illinois.*

PHILIP R. MARVIN, B.Ind.E., Rensselaer Polytechnic, 1937; M.B.A., Indiana, 1951. Criteria for top management application in the audit of industrial research administration. 1952. *Indiana.*

JOHN E. MERTES, B.S., Oklahoma, 1935; M.S., New York, 1937. The impact of product and package design upon the marketing aspects of business. 1952. *Indiana.*

CAREY P. MODLIN, JR., B.A., William and Mary, 1946; M.A., Princeton, 1948. Accounting practice and economic theory. 1952. *Princeton.*

DAVID E. MOSER, B.A., Willamette, 1935; M.S., Columbia, 1938. Manufacturer-dealer relations: a study of manufacturer assistance to retailers and its significance to the distributive function. 1953. *Columbia.*

ROBERT H. MYERS, B.A., Kenyon, 1941; M.B.A., Indiana, 1948. A study of methods used to motivate salesmen. 1952. *Indiana.*

POWELL NILAND, B.S., Scranton, 1942; M.B.A., Harvard, 1948. The effect of federal taxes upon the form of transaction in the acquisition of one company by another. 1951. *Harvard.*

EMIEL W. OWENS, A study of consumers' acceptance of prepackaged produce and meats. 1952. *Ohio State.*

WILLIAM S. PETERS, B.A., Dartmouth, 1946; M.B.A., Pennsylvania, 1948. Factors influencing the location of retail trading establishments. 1952. *Pennsylvania.*

PHILIP H. RAGAN, B.S., Wayne, 1947; M.A., Michigan State, 1949. The organization, management, and significance of industrial foundations in New England. 1951. *Harvard.*

KARL G. RAHDERT, B.S., Indiana, 1942; M.B.A., 1948. Criteria for a raw materials inventory control program. 1952. *Indiana.*

VINCENT G. REUTER, M.A., Iowa, 1949. Development of the unit load principle of materials handling: research, standardization, content, and cooperation. 1951. *Iowa.*

STEWART H. REWOLDT, B.B.A., Michigan, 1946; M.B.A., 1947. The economic effects of marketing research. 1951. *Michigan.*

James S. Schindler, B.S., Illinois, 1939; M.A., Washington, 1942; M.B.A., Michigan, 1942. Accounting problems of quasi reorganization. *Michigan.*

R. G. Seymour, B.S., Idaho, 1936: M.S., Washington, 1947. Behavior of costs in marketing. 1952. *Illinois.*

D. L. Shawver, B.S., Eastern Illinois State, 1947; M.S., Illinois, 1948. Development of the theory of retail price determination. 1952. *Illinois.*

Charles C. Slater, B.S., Northwestern, 1948. The economic growth and market behavior of the baking industry. 1952. *Northwestern.*

Richard L. Smith, B.A., Utah, 1946; M.B.A., Northwestern, 1947. The influence of professional accounting opinion on management decisions. 1952. *Harvard.*

Gloria P. Smythe, B.A., Vassar, 1945; M.A., Columbia, 1946. Resale price maintenance in the distribution of package liquor in New York State. 1952. *Columbia.*

Thomas A. Staudt, B.S., Indiana, 1942; M.B.A., 1948. The manufacturers' agent as a marketing institution—an economic analysis, 1929-48. 1951. *Indiana.*

Robert M. Strahl, B.A., Muskingum, 1935; M.B.A., Ohio State, 1939. Executive training in department stores. 1951. *Ohio State.*

Ralph D. Swick, B.S., Indiana, 1936; M.S., 1938. Uniform accounting methods of Indiana canning industry. 1952. *Indiana.*

Paul A. Vatter, B.A., Holy Cross, 1944; M.A., Pennsylvania, 1947. Structure of retail trade by size of unit. 1952. *Pennsylvania.*

Charles W. Voris, B.S., Southern California, 1947; M.B.A., 1948. A study of personnel management practices in the Northwest. 1951. *Ohio State.*

Thomson M. Whitin, B.A., Princeton, 1944; M.A., 1949. Inventory controls and stock levies. 1952. *Princeton.*

Edgar G. Williams, B.A., Evansville, 1947; M.B.A., Indiana, 1948. The status of the professional personnel executive and his function in Indiana business. 1952. *Indiana.*

Henry E. Wrape, B.C.S., Notre Dame, 1938; M.B.A., Harvard, 1948. Management problems in programs for revising productivity standards under incentive wage plans. 1951. *Harvard.*

Elmer R. Young, B.S., Utah, 1936; M.S., 1937. Some important distribution cost accounting theories and practices. 1952. *Columbia.*

Industrial Organization and Markets; Public Regulation of Business

Degrees Conferred

Edgar S. Bagley, Ph.D., Iowa, 1950. The application of the federal antitrust laws to some aspects of market structure.

Gustav Drews, Ph.D., New York, 1951. Patent rights in the national economy of the United States.

Max A. Geller, Ph.D., New York, 1951. The federal regulation of advertising.

Hyman Goldin, Ph.D., Harvard, 1951. Domestic telegraph industry and the public interest: a study in public utility regulation.

Orris C. Herfindahl, Ph.D., Columbia, 1950. Concentration in the steel industry.

Marshall C. Howard, Ph.D., Cornell, 1951. Petroleum products marketing practices—a study in the relations between large and small business.

Edith Kaufman, Ph.D., Clark, 1951. A history of the Worcester War Price and Rationing Board.

William Martin, Ph.D., Harvard, 1951. Anti-trust acting against the Aluminum Company of America.

Gustav F. Papanek, Ph.D., Harvard, 1951. Food rationing in Britain, 1939-1945, with notes on continental rationing.

Joseph D. Phillips, Ph.D., Columbia, 1951. Small enterprise and public policy.

Edward W. Proctor, Ph.D., Harvard, 1951. Anti-trust policy and the industrial explosives industry.

Royal H. Ray, Ph.D., Columbia, 1950. Concentration of ownership and control in the American daily newspaper industry.

ARCHIE E. RUSSELL, Ph.D., New York, 1950. The location of iron and steel production—F.O.B. The mill price system vs. the basing point system.

ALFRED L. SEELYE, D.C.S., Indiana, 1950. Fluid milk price control during World War II: OPA-Region 5.

Theses Completed and Accepted

RUDOLPH JONES, B.A., Shaw, 1930; M.A., Catholic, 1947. The position of small business in the American economy. ***Catholic.***

WARREN SHEARER, B.A., Wabash, 1936; M.A., Wisconsin, 1941; M.A., Harvard, 1949. Competition through merger. ***Harvard.***

Theses in Preparation

THOMAS V. V. ATWATER, JR., B.A., Washington, 1947; M.A., 1948. M.A., Harvard, 1951. Postwar wage "rounds" and oligopolistic rationale. 1951. ***Harvard.***

FRANK C. BAKER, M.B.A., Harvard, 1920. Public controls in the fluid milk industry. ***New School for Social Research.***

HARRY L. BARRETT, B.A., Rochester, 1942; M.A., Harvard, 1950. Price output policy in gypsum industry. ***Harvard.***

GEORGE D. BODENHORN, M.A., Chicago, 1948. Analysis of railroad regulation by the Inter-State Commerce Commission. 1951. ***Chicago.***

ARNOLD H. DIAMOND, B.B.A., College of the City of New York, 1946; M.A., Columbia, 1947. The New York City Housing Authority; a study in public corporations. 1951. ***Columbia.***

JOHN R. FELTON, B.A., California (Los Angeles), 1939; M.A., 1941. The dissolution of industrial combinations. 1952. ***California*** (Los Angeles).

MORRIS FORKOSCH, B.A., New York, 1936; M.A., 1938. The consumer aspect in anti-trust. ***New School for Social Research.***

WILLIAM H. HARBAUGH, B.A., Alabama, 1942; M.A., Columbia, 1947. The preparedness movement in the United States, 1914-1916. 1952. ***Northwestern.***

RIDGEWAY HOEGSTEDT, B.A., California, 1929; M.A., 1933. The relationship between inventoriable costs and selling prices of selected large industrial corporations, 1934-49. 1952. ***Columbia.***

JOHN A. HOWARD, M.A., Harvard, 1948. The development of British monopoly policy. 1951. ***Harvard.***

JANE KENNEDY, B.A., Texas, 1943. Factors influencing the development of firms in the oil industry. 1953. ***Columbia.***

HARRY T. KOPLIN, B.A., Oberlin, 1947. Certification criteria under the Natural Gas Act. 1951. ***Cornell.***

JOHN M. LISHAN, B.A., Pennsylvania State, 1941; M.A., California (Los Angeles), 1947; M.A., Harvard, 1951. The Sherman Act. 1951. ***Harvard.***

JOHN S. MCGEE, B.A., Texas, 1947. The Robinson-Patman Act: its philosophy and interpretation. 1952. ***Vanderbilt.***

JAMES MCKIE, B.A., Texas, 1943; M.A., 1947; M.A., Harvard, 1949. Bilateral oligopoly in industrial product markets. 1951. ***Harvard.***

THOMAS J. MCNICHOLS, B.S., Texas Christian, 1947; M.B.A., 1948. Analysis of corporate growth and concentration in selected industries. 1951. ***Northwestern.***

NORMAN W. NELSON, B.A., Tufts, 1948; M.A., Fletcher School, 1950. Subsidies to producers as a substitute for tariffs. 1952. ***Fletcher School of Law and Diplomacy.***

WILLIAM C. NOLAN, B.S., New Mexico State Teachers College, 1946; M.A., New Mexico, 1948. Organization for the regulation of trade—the Federal Trade Commission from Humphrey to the basing point decisions. 1952. ***New York.***

DICKSON RECK, B.S., Illinois, 1927. Federal government purchasing: the effect of purchasing policy on prices and products. 1951. ***Columbia.***

EDWARD A. ROBINSON, B.A., St. Mary University, 1944; M.A., Catholic, 1947. Federal incorporation: a study of the proposals for requiring federal charters for corporations engaged in interstate commerce. 1953. ***Catholic.***

GIDEON ROSENBLUTH, B.A., Toronto, 1943. Industrial concentration in post-war Canada. 1952. *Columbia.*

JOHN B. SHEAHAN, B.A., Stanford, 1948; M.A., Harvard, 1951. Competition vs. regulation as a policy aim for the telephone. 1952. *Harvard.*

GORDON SHILLINGLAW, B.A., Brown, 1945; M.S., Rochester, 1948. Requirements contracts and the suppression of competition. 1952. *Harvard.*

RUBIN SIMKIN, B.A., Manitoba, 1947; M.A., Toronto, 1948. Government investment in natural monopolies—a case study. 1952. *Chicago.*

JAMES R. SIMPSON, B.A., Princeton, 1941; M.A., Harvard, 1949. Integration in the textile industry. 1951. *Harvard.*

EDGAR A. TOPPIN, B.A., Howard, 1949; M.A., 1950. A study of the defenders and defense of big business from 1900 to 1917. 1953. *Northwesetern.*

RICHARD A. TYBOUT, M.A., Michigan, 1949. Control of atomic energy. *Michigan.*

JAMES M. WALLER, B.A., Vanderbilt, 1922; M.A., 1927; LL.B., Yale, 1924. An evaluation of our national policy on close combinations. 1952. *North Carolina.*

JARED S. WEND, M.A., Michigan, 1947. Federal control of the dairy industry. 1952. *Michigan.*

Public Utilities; Transportation; Communications

Degrees Conferred

ESTHER J. DUDGEON, D.C.S., Indiana, 1951. Intercity motor carrier transportation.

HENRY W. HEWETSON, Ph.D., Chicago, 1951. The distance principle in railway freight rates, with particular reference to Canada.

FREDERIC P. MORRISSEY, Ph.D., Columbia, 1951. Economic study of the Ontario Hydro-Electric Power Commission.

JAMES P. PAYNE, JR., Ph.D., Illinois, 1951. Some economic aspects of U.S. international air carrier operations.

SAMUEL B. RICHMOND, Ph.D., Columbia, 1951. State-wide telephone rates.

ROY J. SAMPSON, Ph.D., California, 1951. The relationship between railroad freight rates and the domestic distribution of southern pine and Douglas fir lumber.

JAMES H. STEWART, Ph.D., Kentucky, 1951. Financial history of the Kentucky Utilities Company.

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EARL C. THIBODEAUX, B.S., Louisiaina State, 1941. The New Orleans-Houston port rivalry. *Columbia.*

ERNEST W. WILLIAMS, JR., B.S., Columbia, 1938; M.S., 1939. The regulation of rail-motor rate competition by the Interstate Commerce Commission. *Columbia.*

Theses in Preparation

ROBERT L. ALLEN, B.A., Redlands, 1947; M.A., Harvard, 1950. The influence of power on industrial location. 1951. *Harvard.*

ESTHER R. BACKER, B.A., Radcliffe, 1941; M.A., 1945. Economics of urban transportation. 1952. *Harvard.*

MILTON S. BAUM, B.S., California (Los Angeles), 1939; M.B.A., Pennsylvania, 1940. The economics and regulation of air freight. 1952. *Southern California.*

HARVEY C. BUNKE, B.S., Illinois, 1947; M.S., 1949. Air mail payments to scheduled air carriers. 1951. *Illinois.*

EDWARD M. CAINE, B.B.A., College of the City of New York, 1940; M.P.A., New York, 1947. The regulation of commercial aviation under the Civil Aeronautics Act of 1938. 1952. *New York.*

JOHN S. DAVENPORT, M.S., Illinois, 1947. The utility of circulation aggregates to newspaper management as shown in a quantitative evaluation of the circulation policies of the Register and Tribune Publishing Company, 1909-1950. *Iowa.*

WILLIAM R. DIECKMAN, M.A., Michigan, 1947. Rate regulation in the air transport industry. 1952. *Michigan.*

ROBERT S. EINZIG, M.A., Michigan, 1949. Competition in the air-transport industry: a case study in public control. 1952. *Michigan.*

MICHAEL GORT, B.A., Brooklyn, 1943; M.A., Columbia, 1951. The planning of investment: a study of capital budgeting in the electric power industry. 1952. *Columbia.*

RALPH C. HEATH, B.A., Princeton, 1931; M.B.A., Indiana, 1948. The development of pipe lines in the United States. 1952. *Indiana.*

RICHARD HELLMAN, B.A., Columbia, 1934. Government competition in public utilities. 1952. *Columbia.*

ROY E. HUFFMAN, B.S., Montana State, 1938; M.S., Maryland, 1939. Economics of irrigation development and public water policy. 1952. *Wisconsin.*

EDWIN HUGHES, B.A., Williams, 1919; M.A., 1934. The St. Paul reorganization. 1953. *Columbia.*

HERBERT E. JOHNSON, B.Ed., Southern Illinois, 1939; M.S., 1947. Pricing policies in the natural gas industry. 1951. *Illinois.*

WILLIAM B. KEELING, B.B.A., Texas, 1946; M.A., 1949. The enforcement of the Public Utility Holding Act of 1935. 1952. *Texas.*

JAMES H. LEMLEY, B.A., Mississippi, 1936; M.A., 1948. Development of the Gulf, Mobile and Ohio Railroad Company. 1952. *Indiana.*

HARVEY J. LEVIN, B.A., Hamilton, 1944; M.A., Columbia, 1948. Cross channel ownership of mass media: a study in social evaluation. 1952. *Columbia.*

MERTON H. MILLER, B.A., Harvard, 1943. Discrimination in railroad rates. 1952. *Johns Hopkins.*

EDWARD J. NEUNER, JR., B.A., Brooklyn, 1944; M.A., Wisconsin, 1945. State and federal regulation of natural gas industry. 1953. *Columbia.*

JAMES A. SNITZLER, B.A., Washington, 1943; M.B.A., Columbia, 1949. A study of the pricing policies of the Bonneville Power Administration: their theory, structure and effects. 1952. *Columbia.*

HORACE TOWNSEND, JR., M.A., Pennsylvania, 1939. Long-term problems in the coastwise and inter coastal shipping industry. 1952. *Pennsylvania.*

LELAND S. VAN SCOYOC, B.S., Kansas State, 1926; M.S., 1935. History of the development and economic importance of the Chicago, Indianapolis and Louisville R.R. 1952. *Indiana.*

WILLIAM WEINER, B.A., Texas, 1939; M.A., 1946. A study of the Hope Natural Gas Company—its historical background and economic significance. 1952. *Columbia.*

THEODORE L. WHITESEL, B.Ed., Charleston Teacher's College, 1931; B.S., Illinois, 1932; M.S., 1933. Joint federal-state jurisdiction in the regulation of interstate public utilities corporation. 1951. *Illinois.*

JOHN G. YENCHAR, B.A., Princeton, 1925; M.A., 1926. Federal airline regulation, 1926-1951. 1953. *Columbia.*

WILLIAM M. ZENTZ, M.A., Michigan, 1947. Simplification and integration of public utility holding companies. 1952. *Michigan.*

Industry Studies

Degrees Conferred

GUY BLACK, Ph.D., Chicago, 1951. Market controls in the California grape industry: an evaluation.

J. HOWARD CRAVEN, Ph.D., Harvard, 1951. Structure and functioning of the U.S. wool industry.

HARRY M. DIXON, Ph.D., Illinois, 1951. The Illinois coal mining industry.

WILLIAM A. HAYES, Ph.D., Catholic, 1951. The hotel industry in the American economy.

DONALD R. HODGMAN, Ph.D., Harvard, 1951. New production index for Soviet industry.

MARTHA C. HOWARD, Ph.D., Columbia, 1951. History of the margarine industry.

FREDERICK T. MOORE, Ph.D., California, 1951. Industry organization in non-ferrous metals.

James A. Morris, Ph.D., Harvard, 1951. Woolen and worsted industry in the southern Piedmont states.

Wallace B. Nelson, Ph.D., Iowa, 1950. The oil industry: a case study in imperfect competition.

Lloyd B. Saville, Ph.D., Columbia, 1940. Price determination in the gray-iron foundry industry.

Carl M. Stevens, Ph.D., Harvard, 1951. Problem of the household industry in input-output studies.

Herbert Striner, Ph.D., Syracuse, 1951. An analysis of the bituminous coal industry in terms of total energy supply and a synthetic oil program.

Theses in Preparation

Robert R. Auray, B.A., Georgetown, 1947; M.A., 1949. Production functions for a malleable casting firm. 1952. *Columbia.*

Frederick E. Balderston, B.A., Cornell, 1948; M.A., Princeton, 1950. Vertical integration in the housing industry. 1952. *Princeton.*

Victor J. Baran, B.S., Georgia Tech, 1942; B.S., 1946; M.S., 1949. Economic factors influencing the location and growth of the chemical industry. *Virginia.*

Harry R. Bradley, B.A., California (Los Angeles), 1948. The aluminum industry in a defense economy. 1953. *Columbia.*

Maurice L. Branch, B.A., Michigan State, 1946; M.A., 1947. Some economic aspects of the paper and pulp industry. 1952. *Wisconsin.*

Robert E. Carmody, B.S., St. Louis, 1943; M.S., 1948. The economic theory of demand in the Firestone Tire and Rubber Company's price quality study. 1952. *St. Louis.*

Paul R. Cawthrop, B.A., Marietta, 1946; M.A., Columbia, 1948. The development of the salt, petroleum and chemical industries in the Upper Ohio Valley. 1953. *Columbia.*

Robert H. Cole, B.S., Illinois, 1939; M.S., 1940. Some marketing aspects of vertical integration in the Southeastern textile industry. 1952. *North Carolina.*

Paul W. Cook, Jr., B.A., Brown, 1948. The economic basis and effect of the development of synthetic liquid fuel processes. 1951. *Chicago.*

Charles R. Dean, B.S., Harvard, 1945. Economic aspects of the legitimate theater. 1952. *Columbia.*

Edgar O. Edwards, B.A., Washington and Jefferson, 1947; M.A., Johns Hopkins, 1949. Expansion in the chemical industry in the United States. 1951. *Johns Hopkins.*

Alfred O. Ginkel, B.A., Rochester, 1944; M.S., 1946. Invention and innovation in the graphic arts industry, 1930-1950. 1951. *Massachusetts Institute of Technology.*

Ada M. Harrison, B.A., State College of Washington, 1941; M.A., Radcliffe, 1949. An economic analysis of the furniture industry. 1951. *Harvard.*

J. Richard Powell, B.A., Santa Barbara State College, 1938; M.A., California (Los Angeles), 1939. The Mexican petroleum industry since expropriation. 1951. *California (Los Angeles).*

Martin M. Psaty, B.A., California, 1939. Output and productivity in building construction. 1952. *New York.*

Richard E. Ridgway, LL.B., Jefferson, 1936; B.B.A., Texas, 1946; M.B.A., 1947. The manufacture and marketing of Arkansas-made furniture. 1951. *Ohio State.*

Vernon W. Ruttan, B.A., Yale, 1948; M.A., Chicago, 1950. Technological progress in the meat packing industry. 1951. *Chicago.*

Richard Scheuch, B.A., Princeton, 1942; M.A., 1948. The building trades unions and the cost of housing. 1952. *Princeton.*

Stanley Schor, B.A., Pennsylvania, 1943; M.A., 1950. Ratio of capital to product in manufacturing by size of plant. 1952. *Pennsylvania.*

Gertrude Schroeder, B.A., Colorado State College of Education, 1940; M.A., Johns Hopkins, 1948. The growth of the business unit in the iron and steel industry. 1951. *Johns Hopkins.*

John R. Summerfield, B.S., Massachusetts Institute of Technology, 1938; M.B.A., Cali-

fornia, 1947. The economic effects of the development of automatic process controls in American industry. 1952. *California.*

George S. Tolley, B.A., American, 1947; M.A., Chicago, 1950. Economic efficiency in the meat packing industry. 1951. *Chicago.*

Marcus Vosk, B.S., College of the City of New York, 1929; M.A., Columbia, 1931. A contribution to the history of the machine industry. *New School for Social Research.*

Harold L. Wattel, B.A., Queens, 1942; M.A., Columbia, 1947. The whiskey industry. *New School for Social Research.*

George W. Wright, B.A., Kent State, 1948; M.A., Harvard, 1950. Industrial location theory and economic development. 1952. *Harvard.*

Land Economics; Agricultural Economics; Economic Geography

Degrees Conferred

Gerald R. Abbenhaus, Ph.D., Illinois, 1951. Locational changes in the food processing industries between 1939 and 1947.

Resat M. Aktan, Ph.D., California, 1950. Agricultural policy of Turkey, with special emphasis on land tenure.

Vance I. Alvis, Ph.D., Virginia, 1951. The interstate economic relationships of Arkansas: prewar and postwar.

Richard B. Andrews, Ph.D., Wisconsin, 1951. An examination of the post-war adjustments, trends, and problems in the Madison, Wisconsin, housing market.

Kenneth Bachman, Ph.D., Harvard, 1951. Chapters on farm size, with special emphasis on low production farming units.

Emer E. Broadbent, Ph.D., Illinois, 1950. The demand for quality eggs in the Chicago retail trade.

Owen L. Brough, Ph.D., Iowa State (Ames), 1950. Economics of marketing hogs by carcass weight and grade.

Samuel L. Brown, Ph.D., Georgetown, 1951. The elasticity of demand of housing.

Dale E. Butz, Ph.D., Minnesota, 1950. An economic analysis of the Minnesota dry milk industry.

Fred E. Case, D.C.S., Indiana, 1951. Federal budgetary commitments for housing 1930-1951—implications.

David A. Clarke, Jr., Ph.D., California, 1951. Costs, pricing, and conservation in wholesale milk delivery in Los Angeles.

Warren E. Collins, Ph.D., Illinois, 1950. Methodology in the measurement of fluid milk consumption and factors affecting demand.

Robert L. Clodius, Ph.D., California, 1950. An analysis of statutory marketing control programs in the California-Arizona orange industry.

John H. Cumberland, Ph.D., Harvard, 1951. Locational structure of the East Coast steel industry.

Leslie E. Drayton, Ph.D., Wisconsin, 1951. Marketing fruits and vegetables in southeastern Wisconsin.

Mahmound A. El-Shafie, Ph.D., Wisconsin, 1951. Population pressure on land and the problem of capital accumulation in Egypt.

Glenn W. Freemyer, Ph.D., Illinois, 1950. History and an economic analysis of milk supply problems in the St. Louis marketing area, 1910-1949.

John C. Frey, Ph.D., Iowa State (Ames), 1951. Some obstacles to recommended land use practices in western Iowa and means for overcoming them.

Ernest M. Gould, Jr., Ph.D., Harvard, 1951. Economic problems of managing small woodland holdings in New England.

Edgar Haff, Ph.D., Harvard, 1951. Federal-state-local relations in agriculture, a general survey.

Hans G. Hirsch, Ph.D., Minnesota, 1950. The role of cooperatives in the federal milk marketing scheme.

Harald R. Jensen, Ph.D., Iowa State (Ames), 1950. Economics of crop rotations.

MANLEY H. JONES, D.C.S., Harvard, 1950. Problems of the soybean industry.

RANDOLPH G. KINABREW, Ph.D., Louisiana State, 1950. Tung oil: an economic analysis.

RICHARD KING, Ph.D., Harvard, 1951. Location of agriculture production theory and application to the poultry meat industry of eastern Connecticut.

GERALD KORZAN, Ph.D., Minnesota, 1951. Marketing dairy products in sparsely populated regions with special reference to Montana.

ALDEN C. MANCHESTER, Ph.D., Harvard, 1951. Price-making in the Boston egg market.

STEPHEN L. MCDONALD, Ph.D., Texas, 1951. Future agricultural policy with a view to an integrated economy.

JOE R. MOTHERAL, Ph.D., Wisconsin, 1951. Progress of land tenure adjustments in a family farm area of Texas.

OTTAR NERVIK, Ph.D., Harvard, 1951. Chain store selling and buying.

KENNETH E. OGREN, Ph.D., Minnesota, 1951. An analysis of consumer demand for fresh citrus fruits, frozen concentrated orange juice, and selected canned fruit juices.

JACOB OSER, Ph.D., Columbia, 1950. Government price policy in agriculture.

WILLIAM N. PARKER, Ph.D., Harvard, 1951. Fuel supply and industrial strength.

PERRY F. PHILIPP, Ph.D., California, 1951. An economic analysis of the diversified agriculture of Hawaii.

ADDISON D. REED, Ph.D., California, 1951. Improving California poultry management.

SHERMAN T. RICE, Ph.D., Illinois, 1950. Interregional competition in the commercial broiler industry.

HENRY M. M. RICHARDS, Ph.D., New York, 1951. Attempts by the federal government to support agricultural prices.

FRED SCHRADER, Ph.D., Illinois, 1951. The demand for meat in Canada.

THEODORE SIELAFF, Ph.D., Minnesota, 1951. An economic study of rural electrification in Minnesota.

EARL R. SWANSON, Ph.D., Iowa State (Ames), 1951. Agricultural resource productivity and attitudes toward the use of credit in southern Iowa.

VINCENT I. WEST, Ph.D., Illinois, 1951. Evaluation of certain systems for differentiating market qualities of soybeans.

ALEX SWANTZ, Ph.D., Minnesota, 1951. Economic effects of government regulations of fluid milk market with special reference to the Minneapolis-St. Paul market.

FREDERICK R. TAYLOR, Ph.D., Minnesota, 1951. An economic analysis of quality deterioration in Minnesota eggs.

J. ROBERT TOMPKIN, Ph.D., Iowa State (Ames), 1950. Evaluation of the production and subsistence loan program in Iowa.

RAYMOND F. WALLACE, Ph.D., Northwestern, 1951. The economic background and managerial decisions in the location of industrial plants in Mississippi under the Balance Agriculture with Industry Program.

DONALD B. WILLIAMS, Ph.D., Illinois, 1950. The application of the economic theory of the firm to farm management research with special reference to recent advances in dynamic economics.

FRANCIS S. YEAGER, Ph.D., Minnesota 1951. The metropolitan twin cities, a regional entrepot—an economic analysis and interpretation of the upper midwest.

Thesis Completed and Accepted

GERTRUDE NATUSCH, B.A., Mt. Holyoke, 1941; M.A., Radcliffe, 1945. Planning family food budgets for improved nutrition. *Harvard.*

Theses in Preparation

V. NORMAN ALBRECHT, B.S., Maryland, 1944; M.A., 1945. Consumption of agricultural production in the United States. *Harvard.*

WALTON J. ANDERSON, B.S., Saskatchewan, 1942; M.S., 1944. The economic efficiency of British Columbian agriculture. 1951. *Chicago.*

CHESTER B. BAKER, B.S., Iowa State (Ames), 1946; M.S., 1948. Government participation in agricultural credit. *California.*

Elmer F. Baumer, M.S., Ohio State, 1947. Formulas for pricing of milk to producers in Ohio. 1951. *Ohio State.*

Sherwood O. Berg, B.S., South Dakota State College, 1947; M.S., Cornell, 1948. An economic analysis of agricultural production credit in Minnesota. 1951. *Minnesota.*

Charles E. Bishop, B.S., Berea, 1946; M.S., Kentucky, 1947. Off-farm employment as a means of improving family opportunities in agriculture. 1952. *Chicago.*

H. Wayne Bitting, B.S., Illinois, 1933; M.S., Iowa State (Ames), 1937. Problems in measuring and analyzing marketing margins for selected fruits and vegetables. 1951. *Minesota.*

George F. Bloom, B.S., Indiana, 1941; M.B.A., 1948. The appraisal plant of information. 1952. *Indiana.*

Ted R. Brannen, B.S., Arkansas, 1944; M.S., 1947. The surplus problem in agriculture. 1951. *Texas.*

Arnold Brekke, B.S., Minnesota, 1942. Development of agricultural policy. 1951. *Minnesota.*

John T. Buck, B.S., Western Kentucky State, 1938; M.S., Kentucky, 1947. An economic analysis of the shift from cream to whole milk in Minnesota cooperative creameries. 1951. *Minnesota.*

Wilbur D. Buddemeier, B.S., Illinois, 1933; M.S., 1941. Economic problems of forage production and utilization on Illinois farms. 1952. *Illinois.*

Douglas D. Caton, B.S., Wisconsin, 1948; M.S., 1949. Trends in prices, production, processing and distribution of canning peas and sweet corn in Wisconsin. 1952. *Wisconsin.*

Gordon J. Chapman, B.S., Missouri, 1947; M.A., 1948. The marketing of prefabricated homes in the Midwest. 1952. *Indiana.*

James H. Clarke, B.S., Kentucky, 1935; M.S., 1937. Some economic aspects of fluid milk marketing in West Virginia. 1952. *Minnesota.*

Edwin J. Cohn, Jr., B.A., Harvard, 1942. Regional location of industry in the Pacific Northwest. 1952. *Columbia.*

Philip E. Coldwell, B.S., Illinois, 1946; M.S., 1947. Some aspects of the Columbia and Missouri River projects. 1952. *Wisconsin.*

Rex F. Daly, B.S., Utah State, 1938; M.S., Maryland, 1939. An analysis of prospective demand outlets and market outlets for the products of western agriculture. 1952. *Illinois.*

Kinchloe C. Davis, M.S., Oklahoma A. & M., 1941. The farm lease influence on farm organization and tenure stability. 1953. *Wisconsin.*

Lee M. Day, B.S., Iowa State (Ames), 1947; M.S., 1948. An economic analysis of leasing arrangements. 1951. *Minnesota.*

William M. Drummond, B.A., Queen's, 1923; M.A., Toronto, 1924; M.A., Harvard, 1951. Economics of the Canadian dairy industry. 1952. *Harvard.*

Edgar S. Dunn, Jr., B.S.B.A., Florida, 1943; M.A., 1948; M.A., Harvard, 1950. The solution of land use patterns in agriculture. 1951. *Harvard.*

Carlos C. Erwin, B.A., Murray (Kentucky), 1939; M.S., Illinois, 1948. Analysis of some interregional economic problems in the marketing of agricultural products. 1952. *Illinois.*

Merrill B. Evans, M.S., Ohio State, 1948. Some of the physical and quality factors to be considered in an improved system of buying and selling hogs. 1951. *Ohio State.*

William A. Faught, B.S., Arkansas, 1940; M.A., Virginia, 1942. The development of the one-variety cotton program. 1952. *Virginia.*

W. Lyle Fitzgerald, B.S., Missouri, 1947; M.A., 1949. Problems in assembling, processing, and distributing hogs and pork products. 1952. *Illinois.*

W. James Foreman, B.S., Arkansas, 1947; M.S., Illinois, 1949. Regional economic development with special reference to the location of plants in the food industries. 1952. *Illinois.*

William A. Frank, B.S., Pennsylvania, 1943; M.A., Chicago, 1949. Gains and costs involved in reducing seasonal and annual variability of hog supplies. 1952. *Chicago.*

Elsayed Gaballah, B.S., Fouad I University (Egypt), 1938; M.S., 1945. An economic analysis of the price approach to agricultural stabilization. 1952. *Wisconsin.*

Lowell N. George, B.S., Warrensburg (Missouri) Teachers, 1930; M.A., George Peabody

College, 1939. An historical analysis of agricultural cooperation in twelve selected counties of southeastern Ohio. 1952. *Illinois.*

Ray A. Goldberg, B.A., Harvard, 1948; M.B.A., 1950. The hedging of grain: its effect on the American economy. 1952. *Minnesota.*

Frank D. Hansing, B.S., Illinois, 1941; M.S., 1947. Factors influencing changes in the ownership and size of farm land holdings. 1952. *Illinois.*

James W. Hanson, B.S.C., Nebraska; M.A. The influence of the FHA on the competitive structure of the Boston home mortgage market. 1952. *Massachusetts Institute of Technology.*

Robert O. Harvey, B.S., Indiana, 1947; M.B.A., 1949. Financing of construction of single family dwelling units. 1951. *Indiana.*

Lawrence W. Haynes, B.S., Purdue, 1936. An analysis of the ice cream industry as an outlet for dairy products. 1952. *Wisconsin.*

William E. Hendrix, B.S., Tennessee, 1935; M.S., 1936. Capital productivity and accumulation in agriculture in the Piedmont of Georgia. 1951. *Wisconsin.*

Jimmye S. Hillman, B.S., Mississippi State, 1942; M.S., Texas A. & M., 1946. Barriers to interstate trade in agricultural products. *California.*

Geoffrey A. Hiscocks, B.Sc., Reading, 1946; M.S., Illinois, 1951. The implications of farmers' motivations in farm business analysis. 1952. *Illinois.*

William S. Hoognale, B.S., Virginia, 1947; M.A., 1948. Markets and prices for Florida fresh oranges. 1951. *Virginia.*

Leo M. Hoover, B.S., Kansas State, 1940; M.S., Iowa State, 1942. Capital and labor substitution on farms in the plain area of Kansas. 1952. *Harvard.*

Melvin R. Janssen, B.S., Illinois, 1943; M.P.A., Harvard, 1948; M.S., Illinois, 1948; M.A., Harvard, 1949. Labor and capital substitution on farms in cash grain areas of corn belt. 1951. *Harvard.*

Matthews M. Johnson, B.S., 1936; M.A., 1939. The Philadelphia mortgage market. 1951. *Pennsylvania.*

Richard C. Kao, Macro-economic studies in agricultural production and price policies. 1952. *Illinois.*

Saul M. Katz, B.S., Cornell; M.S., M.P.A., Harvard; M.A. Agricultural policy in relation to western hemisphere agricultural programs.

William N. Kinnard, Jr., B.A., Swarthmore, 1947; M.B.A., Pennsylvania, 1949. The impact of real estate finance on monetary and fiscal policy. 1952. *Pennsylvania.*

Dale A. Knight, B.S., Kansas State College, 1945; M.S., Cornell, 1946; M.A., Chicago, 1948. Anti-complementary relations among and within agricultural enterprises. 1952. *Chicago.*

John M. Kuhlman, B.A., Washington State, 1948; M.S., Wisconsin, 1949. Regional planning in the upper Wisconsin river valley. 1952. *Wisconsin.*

L. John Kutish, B.S., Iowa State (Ames), 1943. Marketing of feed molasses. 1952. *Wisconsin.*

Luigi M. Laurenti, B.A., California, 1948. The effects of minority group occupancy on real property values in San Francisco and Berkeley, California. 1952. *California.*

Charles E. Lee, B.A., Saskatchewan, 1930; B.S., 1931. Economic effects of sanitary regulations relating to milk markets. 1952. *Minnesota.*

Jack Lessinger, B.S., California, 1943. An analysis of the history of land use on the Day Valley Ranch, Aptos, California, 1868 to 1950. *California.*

John K. Lewis, B.A., Chicago, 1935; M.A., Nebraska, 1937. Returns to productive factors and resource allocation with special reference to agriculture. 1951. *Chicago.*

Clayton P. Libeau, B.S., Maryland, 1941; M.S., Wisconsin, 1948. Commercial movement of field seeds, 1952. *Wisconsin.*

Frank H. Maier, B.A., Valparaiso, 1940; M.B.A., Chicago, 1941; M.A., 1949. Effects of farm leasing arrangements on resource allocation. 1952. *Chicago.*

Joe A. Martin, B.S., Clemson, 1946; M.S., 1948. Land use adjustments in the Tennessee Valley. 1952. *Minnesota.*

Chester O. McCorkle, Jr., B.S., California, 1947; M.S., 1948. Economics of scale in cotton and potato farming—Southern San Joaquin Valley. *California.*

WILLIAM E. McDANIEL, B.S., Missouri, 1942; M.S., Illinois, 1943. Equitable farm leases. 1951. *Minnesota.*

CHRISTIANA McFADYEN, B.A., North Carolina, 1936; M.A., Columbia, 1938. The history of the American Farm Bureau Federation. 1952. *Chicago.*

ALEXANDER MELAMID, B.S.Sc., London School of Economics, 1937; Post Graduate Diploma, 1939. The location of petroleum refineries. *New School for Social Research.*

TROY MULLINS, B.S.A., Arkansas, 1934; M.S., Wisconsin, 1938. Economics of mechanization of rice production in Louisiana. 1953. *Wisconsin.*

JOHN C. MURDOCK, B.S., Oaklahoma, 1947. The economics of petroleum conservation. 1952. *Wisconsin.*

P. V. SIVARAMA MURTHY, M.A., Madras, 1944. War and Indian agriculture, 1937-1947. 1952. *Columbia.*

HERMAN L. MYERS, B.S., Connecticut, 1940; M.P.A., Harvard, 1947; M.A., 1949. Economic analysis of technological developments in the marketing and processing of food products, 1930-1950. 1951. *Harvard.*

THADDEUS J. OBAL, B.S., Illinois, 1948; M.S., 1949. Integrating national agricultural and fiscal-monetary policies. 1951. *Illinois.*

ROBERT E. OLSON, B.S., Gustavus Adolphus, 1943; M.S., Minnesota, 1948. Some economic aspects of artificial insemination of dairy cattle. 1951. *Minnesota.*

EVERETT E. PETERSON, B.S., Montana State, 1939; M.S., 1943; M.A., Chicago, 1950. Production adjustments to the base-excess plan of milk pricing in the Detroit milkshed. 1952. *Chicago.*

EWART P. REID, B.A., McGill, 1931; M.A., 1932. Transportation as a factor affecting Canadian agriculture. 1952. *Wisconsin.*

FRANKLIN J. REISS, B.S., Illinois, 1940; M.S., 1942. Individual differences in farm managerial ability. 1951. *Illinois.*

KENNETH L. ROBINSON, B.S., Oregon State, 1942; M.S., Cornell, 1948. A study of fluid milk margins in northeastern markets. 1951. *Harvard.*

WALDO S. ROWAN, B.S., Georgia, 1940; M.S., Tennessee, 1941. Marketing seasonal surplus milk in deficit producing areas. 1952. *Wisconsin.*

ROBERT W. RUDD, B.S., Kentucky, 1939. An analysis of feeder pig prices, with special reference to Kentucky livestock auctions. *California.*

LESTER C. SARTORIUS, B.B.A., Minnesota, 1941; M.A., 1949. Food consumption through Minneapolis eating places. 1951. *Minnesota.*

WILLARD D. SCHUTZ, B.S., Wisconsin, 1940; M.S., Montana State, 1947. An appraisal of cost benefit analysis as a basis for determining public expenditures in land development. 1952. *Wisconsin.*

FRANK S. SCOTT, JR., B.S., Oregon State 1944; M.A., Missouri, 1947. Economic aspects of multiple-purpose river development with particular emphasis on irrigation. 1952. *Illinois.*

STANLEY K. SEAVER, B.S., Minnesota, 1940; M.S., Connecticut, 1942. The effect of variability in supply of eggs upon wholesale marketing costs. 1951. *Chicago.*

JAMES A. SHUTE, B.S., Pennsylvania State, 1942; M.S., 1947. Dairy chore requirements with loose housing. 1951. *Minnesota.*

CECIL N. SMITH, B.S., Virginia Polytechnic Institute, 1941; M.A., Virginia, 1947. An economic analysis of the eastern seaboard apple industry. *California.*

EDWARD J. SMITH, B.S., Pennsylvania State, 1936. Economics of making and utilizing grass silage. 1951. *Wisconsin.*

RAYMOND C. SMITH, B.S., Missouri, 1949; M.S., Illinois, 1950. Economic aspects of the Illinois hatchery industry. 1952. *Illinois.*

JOHN SNARE, B.S.A., Georgia, 1948; M.S.A., 1949. A study of personal resources and characteristics as they affect systems of farm tenancy. 1952. *Minnesota.*

VERNON SORENSON, B.A.B.A., Minnesota, 1948; A study of vertical integration among cooperative dairy marketing associations. 1952. *Minnesota.*

ROBERT G. F. SPITZE, B.S.A. Arkansas, 1947. Methodological issues in the analysis of agricultural policy. 1952. *Wisconsin.*

CARL H. STOLTENBERG, B.S., California, 1948; M.F., 1949. Tax delinquency and land

ownership and management policies in forest areas of northern Minnesota. 1952. *Minnesota.*

James H. Street, B.A., Texas, 1940. Recent technological developments in American cotton production and their social effects. 1952. *Pennsylvania.*

H. R. Stucky, B.S., Idaho, 1927; M.S., Minnesota, 1942. Settlement and repayment policies on irrigation projects. 1952. *Minnesota.*

George P. Summers, B.S., Kentucky, 1928; M.S., 1932. An economic study of the price support and control program for burley tobacco. 1952. *Minnesota.*

Francis G. Thomason, B.A., Virginia, 1942; M.A. 1947. A study of relationships between two types of agricultural commodities; sugar and corn sweeteners. 1953. *Virginia.*

William N. Thompson, B.S., Illinois, 1941; M.S., 1942. Systems of farming for highly productive land. 1952. *Illinois.*

Paul Todd, Jr., B.S. Cornell, 1942. An analysis of the effect of economic factors upon nutritional intake patterns, and the application of these effects to the evaluation of food disposal programs. 1951. *Chicago.*

Clarence E. Trotter, B.S., Pennsylvania State, 1938. A study of custom candling and cartoning of eggs at four Pennsylvania cooperatives with particular reference to cost factors. 1952. *Minnesota.*

Edward H. Ward, B.S., Wisconsin, 1946. Economics of dairy marketing. 1952. *Wisconsin.*

Clinton L. Warne, B.A., Colorado, 1947; M.A., Clark, 1948. Some aspects of the impact of the passenger automobile upon the economy of Nebraska. 1952. *Nebraska.*

Arthur E. Warner, B.S., Indiana, 1949; M.B.A., 1950. Financing the construction of prefabricated homes in the Middle West. 1952. *Indiana.*

Norman Weinberg, B.A., Western Reserve, 1947; M.A., Columbia, 1949. The external trade of Maryland. 1952. *Columbia.*

Marion N. Williamson, Jr., B.S., Texas A. & M., I.A., Harvard. Effect of improved technologies on physical input-output relations and farm income on farms in the high plains area of Texas. 1952. *Harvard.*

Walter J. Wills, B.S., Illinois, 1936; M.S., 1937. Marketing livestock in southern Illinois. 1952. *Illinois.*

Egon P. Winter, B.S., Iowa State 1942; M.S., Colorado State, 1944. Reappraisal of waste, a conceptual and statistical analysis. 1953. *Wisconsin.*

Norman Zellner, B.S., California, 1947. An economic analysis of the California prune industry. *California.*

Labor

Degrees Conferred

Henry H. Alders, Ph.D., Yale, 1951. The meaning and significance of union jurisdiction.

Monroe Berkowitz, Ph.D., Columbia, 1951. The Master Weavers Institute, a case study of multi-employer bargaining.

Robert E. Berry, Ph.D., Wisconsin, 1950. The state labor departments: organization, functions, personnel and finances, relations with the federal Department of Labor.

Walter L. Blackledge, Ph.D., Iowa, 1951. Labor law guide of the Wagner Act.

Robert S. Bowers, Ph.D., Wisconsin, 1951. The International Brotherhood of Teamsters and a theory of jurisdiction.

Clay L. Cochran, Ph.D., North Carolina, 1950. Hired farm labor and the federal government.

John R. Coleman, Ph.D., Chicago, 1950. Models of labor-management relations: a typology based on plant-level collective bargaining studies.

Harold E. Dreyer, Ph.D., Massachusetts Institute of Technology, 1951. Attitude and behavior change in an industrial organization.

William R. Dymond, Ph.D., Cornell, 1950. Labor-management cooperation: a case study approach.

Richard Eilbott, Ph.D., New School for Social Research, 1949. Health plans under collective agreements.

Joseph Goldberg, Ph.D., Columbia, 1951. American seamen: a study in twentieth century collective action.

Arthur T. Jacobs, Ph.D., Michigan, 1951. Some significant factors influencing the range of indeterminateness in collective bargaining negotiations.

John W. Kennedy, Ph.D., North Carolina, 1951. A history of the Textile Workers Union of America, C.I.O.

Fred E. Kindig, Ph.D., Pittsburgh, 1951. Some problems in job evaluation of organized clerical and technical employees.

Herman Kleine, Ph.D., Clark, 1951. The legal minimum wage in the United States.

William A. Koivisto, Ph.D., Chicago, 1951. The value orientation problem in selected industrial relations studies.

Theodore H. Lang, Ph.D., New York, 1951. An evaluation of the personnel function as administered in operating agencies of the municipal government of New York.

Chih-Wei Lee, Ph.D., Chicago, 1951. A theoretical analysis of the guaranteed annual wage.

Solomon B. Levine, Ph.D., Massachusetts Institute of Technology, 1951. Union-management relations and technical change: a field study of experiences in woolen and worsted textile mills.

Hugh G. Lovell, Ph.D., Massachusetts Institute of Technology, 1951. Mediation process.

Jewel G. G. Maher, Ph.D., Chicago, 1951. Organization and collective bargaining by radio artists.

Roy L. Marx, Ph.D., Wisconsin, 1951. Wage determination in public and quasi-public employment: a study of the background, administration, and economic effects of wage determination under the Davis-Bacon and Walsh-Healey Acts.

Kenneth M. McCaffree, Ph.D., Chicago 1950. An analysis of the differential in earnings between white-collar and manual occupations in 1939.

Thomas J. McDonagh, C.S.C., Ph.D., Wisconsin, 1951. Some aspects of the Roman Catholic attitude toward the American labor movement, 1900-1914.

Seymour M. Miller, Ph.D., Princeton, 1951. Union structure and industrial relations: a case-study of a local union.

Chester A. Morgan, Ph.D., Iowa, 1951. An analysis of postwar American labor relations legislation.

Mark Perlman, Ph.D., Columbia, 1950. Approaches to industrial government in Australia: role of the arbitration court in certain industries.

Louis B. Perry, Ph.D., California (Los Angeles), 1950. The labor movement in Los Angeles 1933-1939.

Albert E. Rees, Ph.D., Chicago, 1950. The effect of collective bargaining on wage and price levels in the basic steel and bituminous coal industries, 1945-48.

Roy R. Reynolds, Ph.D., Massachusetts Institute of Technology, 1951. Public policy with respect to the settlement of labor disputes in the Canadian railway industry.

Alvin Schild, Ph.D., Iowa, 1950. Organized labor in a welfare economy.

Gerald G. Somers, Ph.D., California, 1951. The significance of trade unionism in the inflationary potential of full employment.

James S. Stewart, Ph.D., New York, 1951. Reemployment after military service.

Robert L. Thistlethwaite, Ph.D., Iowa, 1951. A critical analysis of the labor press.

Harry G. Trend, Ph.D., Wisconsin, 1951. The labor union monopoly issue.

Richard C. Wilcock, Ph.D., Illinois, 1951. Employment trends in Illinois in relation to unemployment reserves (1935-1960).

John Windmuller, Ph.D., Cornell, 1951. American labor's role in the international labor movement, 1945 to 1950.

Theses Completed and Accepted

Howard A. Cutler, B.A., Iowa 1940; M.A., 1941. Toward an understanding of adjustment to work. *Columbia.*

Thomas Hampton, B.S., Louisiana State, 1931; M.S., 1945. A survey of technical occupations in Louisiana with implications for technical education. *Cornell.*

Jacob Seidenburg, LL.B., Pennsylvania, 1948. Use of injunction in New York State. *Cornell.*

JOHN H. SLOCUM, B.A., Chicago, 1939-41; M.A., 1946. A study of the labor relations of selected colleges and universities and their maintenance employees. *Cornell.*

EDWARD WICKERSHAM, B.S., Illinois, 1948. Opposition to the international officers U.M.W.A. 1919-33. *Cornell.*

Theses in Preparation

JOSEPH ALEXANDER, B.S., Oklahoma, 1946; M.A., Columbia, 1947. A history of the labor movement in New York City from 1800-1935, with special reference to the period from 1900-1935—a study in the growth of organized labor. 1952. *New York.*

DAN BALABAN, B.S., Massachusetts State College, 1942; M.A., New School for Social Research, 1948. Labor attitudes and productivity. *New School for Social Research.*

JOHN W. BALLANTINE, B.A., Harvard, 1942; M.A., 1948. Industrial government under collective bargaining. 1952. *Harvard.*

NICHOLAS A. BEADLES, B.A., North Carolina, 1940; M.A., Colorado, 1947. Arbitration through time. 1952. *Harvard.*

FLORENCE B. BERGER, B.A., Brooklyn, 1943; M.A., Columbia, 1946. The union health center. 1952. *Columbia.*

DILLARD E. BIRD, B.A., Cincinnati, 1933; M.B.A., Ohio State, 1938. The relation of stabilization within the business organization to guarantee of work or wages. 1951. *Ohio State.*

DONALD J. BLAKE, B.S., Harvard, 1945; M.A., California, 1947. The development of seasonal working class organization in Sweden with special references to political and social as well as economic aspects thereof. 1952. *California.*

HERBERT BLOCK, B.A., Syracuse, 1940. Wage practices in federal civil service. 1952. *New York.*

JONAH BLUSTAIN, B.S.S., College of the City of New York, 1940. The validity of the predictions issuing from the American Federation of Labor and the Communist party (USA) 1933-1939, as to the effect of the collective bargaining program of the New Deal upon organized labor. *New York.*

PHILIP A. BROOKS, B.A., Chicago, 1935, M.B.A., 1943. Multiple-industry unionism: a case study in Hawaii. 1952. *Columbia.*

MARJORIE S. BROOKSHIRE, B.A., Texas, 1943; M.A., 1945. Employment of Mexican-Americans in industry in Nueces County, Texas. 1952. *Texas.*

TONY BROUWER, M.A., Michigan, 1947. Economic implications of the forty-hour week. 1952. *Michigan.*

ROBERT L. BUNTING, M.A., Chicago, 1948. A study of the labor market with respect to employer concentration. 1951. *Chicago.*

LEONARD F. CAIN, B.A., St. Joseph, 1943; M.A., Catholic, 1947. The Irish labor movement under the Free State and the Republic. 1952. *Catholic.*

WILLIAM CAIN, M.A., Iowa, 1946. Economic and social implications of the Taft-Hartley Act. 1952. *Iowa.*

ROBERT CHRISTIE, B.A., Swarthmore, 1949. History of the United Brotherhood of Carpenters and Joiners Union. 1952. *Cornell.*

ROBERT G. CONWAY, B.A., New Mexico, 1942; M.A., 1946. Employment in New Mexico. *New School for Social Research.*

ALOYSIUS E. CUSSEN, B.A., Boston, 1941; M.A., Notre Dame, 1948. Trade union policies in the Brockton Shoe Industry. 1951. *Columbia.*

RICHARD T. EASTWOOD, B.A., Tarkio, 1936; M.A., Nebraska, 1939. Labor law and its administration in the lower South. 1952. *Wisconsin.*

MANUEL EBER, B.A., Rochester, 1940; M.A., Chicago, 1948. Union consideration of the employment effect of economic policies: case studies. 1952. *Chicago.*

MILTON T. EDELMAN, B.S., Chicago, 1946; M.B.A., Pennsylvania, 1947. Organized labor and national economic policy in World War II. 1951. *Illinois.*

JACK ELLENBOGEN, B.A., Wisconsin, 1946; M.A., 1951. An evaluation of the several theories of the labor movement. 1952. *Wisconsin.*

LAURA ESTABROOK, B.A., Bryn Mawr, 1939. The settlement of national emergency labor disputes, 1945-1950. 1953. *Columbia.*

JACK FARKAS, B.B.A., College of the City of New York, 1940; M.A., Columbia, 1949. Origins and early growth of American trade unions. 1952. *Columbia.*

ROBERT R. FRANCE, B.A., Oberlin, 1947; M.A., Princeton, 1950. Governmental intervention in strikes which threaten the public safety. 1952. *Princeton.*

CYRIL L. FRANCIS, B.A., Toronto, 1940; M.A., 1946. Government seizure in labor disputes. 1952. *Wisconsin.*

EARL B. FRENCH, M.A., Iowa, 1949. An economic study of fair employment practice legislation. 1952. *Iowa.*

GEORGE A. FULLER, M.A., Iowa, 1939. The development and installation of a wage and salary structure for a major airline. 1952. *Iowa.*

IRWIN GERARD, B.S.S., College of the City of New York, 1941; M.A., Columbia, 1947. Municipal adjustment of labor disputes in private industry. 1952. *Columbia.*

WILLIS E. GIESE, B.S., Stout Institute, 1935; M.S., Purdue, 1940. Technical problems of national empolyment planning in the United States. 1952. *Wisconsin.*

CURRY W. GILLMORE, B.A., Texas, 1945; M.A., 1947. Collective bargaining in the Bell Telephone System. 1952. *Columbia.*

KALMAN GOLDBERG, B.A., Wisconsin, 1949; M.A., Pennsylvania, 1950. Explorations into wage policy and rate-setting policies of selected labor groups. 1953. *Cornell.*

HARRY I. GREENFIELD, B.S.S., College of the City of New York, 1942; M.A., Columbia, 1947. The theory and practice of sliding scale wage agreements in the United States. 1952. *Columbia.*

RUSH V. GREENSLADE, B.A., Princeton, 1938; M.A., Chicago, 1948. The economic effect of unionism in the bituminous coal mining industry. 1951. *Chicago.*

PETER GREGORY, B.A., Ohio Wesleyan, 1948; M.A., Harvard, 1950. Wage determination in the local labor market. 1952. *Harvard.*

GORDON M. HAFERBECKER, B.Ed., Stevens Point Teachers, 1939; M.A., Northwestern, 1942. History of Wisconsin labor legislation. 1952. *Wisconsin.*

ROBERT HAMMER, B.S., College of the City of New York, 1942; M.A., Columbia, 1945. Industrial relations in the New York City general trucking industry. 1951. *Harvard.*

VIRGIL JAMES, B.S., Utah, 1936; Teachers Certificate, Sam Houston State Teachers College, 1939. A case study of hospital employee compensation. 1951. *Cornell.*

GEORGE B. HELIKER, M.A., Michigan, 1949. Grievance arbitration in the automobile industry. 1952. *Michigan.*

RICHARD E. JAY, B.A., Texas Christian, 1946; M.A., 1947. Case study of a successful dependent union: the retail clerks in the San Francisco East Bay area (Alameda County). 1952. *California.*

EUGENE E. JENNINGS, M.A., Iowa, 1950. A study of the relationship of the foreman's personality to the development of cooperation or resistance in the worker. 1952. *Iowa.*

DAVID B. JOHNSON, B.A., Antioch, 1942; M.S., Wisconsin, 1948. Labor relations in the atomic energy industry. 1952. *Wisconsin.*

MYRON L. JOSEPH, B.S., College of the City of New York, 1942; M.A., Columbia, 1947. The effect of the Taft Hartley Act in the Pittsburgh area. 1952. *Wisconsin.*

LOUIS C. JURGENSEN, M.A., Iowa, 1947. An analysis of employee stock ownership. 1951. *Iowa.*

GRACE M. KEEFE, B.A., New York, 1937. The inter-American labor movement, 1918-1950. 1952. *Columbia.*

HERBERT R. KROEKER, B.A., Bethel, 1938; M.A., Kansas, 1942. Fact-finding boards in labor disputes. 1952. *Nebraska.*

AARON KRUTE, B.A., Harvard, 1948; M.A., 1950. Seizure and compulsory arbitration in emergency labor disputes. 1951. *Harvard.*

RUSSEL KUCHEL, M.A., Iowa, 1942. The role of organized labor in a planned economy. 1952. *Iowa.*

STANLEY B. KURTA, B.A., Brooklyn, 1941. Variations in the intensity of labor effort: a study in group dynamics. 1952. *Johns Hopkins.*

LEONARD A. LECHT, B.A., Minnesota, 1942. Collective wage determination in railroads. 1952. *Columbia.*

MARK W. LEISERSON, B.A., Harvard, 1949. Wage structure and worker behavior. 1951. *Harvard.*

LESTER LEVY, B.A., Rutgers, 1949. Union government policies and their impact on the wage structure of the industry; the automobile workers as a case study. 1953. *Cornell.*

MITCHELL LOCKS, B.A., Central YMCA, 1942; M.A., Chicago, 1949. The effect of unionism on wages in a local labor market. 1952. *Chicago.*

RAMSEY H. MADANY, M.A., Iowa, 1949. An analysis of welfare trends in recent American labor legislation. 1952. *Iowa.*

JOHN E. MAHER, B.A., Harvard, 1948; M.S., Wisconsin, 1949. Union, non-union inter-occupational wage differentials. 1952. *Harvard.*

HOWARD D. MARSHALL, B.A., Columbia, 1947; M.A., 1949. The effects of unions on labor mobility and labor turnover. 1953. *Columbia.*

MARTHA J. MARSHALL, B.A., Chicago, 1939; M.A., 1945. Price and wage policy in the automobile industry, 1945-1948. 1952. *Chicago.*

EUGENE C. MARTINSON, M.A., Michigan, 1946. British trade unionism and national economic policy. 1952. *Michigan.*

ROYAL MATTICE, B.S., Purdue, 1933; M.A., Mississippi, 1935. The development of labor unions in Florida. 1952. *North Carolina.*

ROBERT M. MOONEY, B.A., St. Mary's University, 1941; M.A., Catholic, 1947. Labor policies in the jewelry industry: New England area. 1953. *Catholic.*

DANIEL P. MOYNIHAN, B.N.S., Tufts, 1946; B.A., 1948; M.A., Fletcher School, 1949. United States and the International Labor Organization. 1952. *Fletcher School of Law and Diplomacy.*

GEORGE E. MUNN, B.A., Wisconsin, 1931; M.A., 1939. Present-day labor-management thought on sound industrial relations. 1952. *Wisconsin.*

LESLIE MUNNEKE, M.A., Iowa, 1947. A social and economic analysis of recent state labor legislation. 1952. *Iowa.*

EVANS B. MURRAY. Some causes of dis-harmony in union-management relations: big meat packing, 1939-49. 1952. *Chicago.*

OSCAR A. ORNATI, B.A., Hobart, 1949; M.A., Havard, 1950. An analysis of the logic of collective bargaining negotiations. 1951. *Harvard.*

STEPHEN B. PACKER, B.A., Columbia, 1948; M.A., Chicago, 1950. Causes and extent of low returns to southern agricultural labor. 1953. *Columbia.*

JOHN PARKANY, D.Jur. Budapest, 1945; M.A., Georgetown, 1949. The effects of wage changes upon employment under prevailing American economic conditions. 1952. *Columbia.*

NORMAN G. PAULING, B.A., Texas, 1944; M.A., 1947. Relations of government and labor in New Zealand. 1952. *Texas.*

JOHN M. PETERSON, B.A., Washington, 1942; M.B.A., Harvard, 1947; M.A., Chicago, 1950. "Shock effect" of a wage increase on management efficiency. 1951. *Chicago.*

CHARLES PHILLIPS, M.A., Iowa, 1950. State efforts to settle labor disputes in public utility industries. 1952. *Iowa.*

LLOYD F. PIERCE, B.A., Carson-Newman, 1939; M.A., American, 1945. A history of the American Association for Labor Legislation. 1952. *Wisconsin.*

ARTHUR R. PORTER, JR., B.S., Washington and Lee, 1940; M.A., Pennsylvania, 1948. Property rights in jobs—a case study of the practices of the International Typographical Union. 1952. *Pennsylvania.*

ROBERT RAIMON, B.S., Columbia, 1947; M.S., Cornell, 1948. Comparative wages and their relevance to wage determination, with particular reference to the wage survey work of employer associations. 1951. *Cornell.*

LOUIS REMMERS, B.A., Antioch, 1946; M.S., Purdue, 1948. A qualitative study of some determinants of membership participation in a local union. *Cornell.*

RAYMOND RITLAND, M.A., Iowa, 1948. A study of state and federal regulation of the closed shop. 1951. *Iowa.*

ROBERT McC. ROBINSON, B.A., California, 1935; M.A., 1937. A history of the teamsters in the San Francisco bay area, 1850-1950. 1951. *California.*

THEODORE W. ROESLER, B.S., Nebraska, 1941; M.A., Nebraska, 1947. State-federal relations in labor legislation. 1952. *Wisconsin.*

WILLIAM E. ROGERS, B.A., Missouri, 1941; M.A., 1947. The St. Louis Labor Health Institute: a study in labor-management cooperation. 1951. *Missouri.*

BENJAMIN A. ROGGE, M.A., Nebraska, 1946. Wage policy and the location of industry. 1951. *Northwestern.*

HILDA ROSENBLOOM, M.A., Radcliffe, 1949. An analysis of benefits for medical care and sickness in collective bargaining agreements. 1952. *Harvard.*

SVERRE I. SCHELDRUP, B.A., North Dakota, 1928; B.S., 1930; M.A., 1931. Labor-cooperative relations in Norway. 1951. *Wisconsin.*

JOSEPH SCHERER, B.A., Brooklyn, 1939; M.A., Chicago, 1948. Collective bargaining in service industries: a study of the year-round hotels. 1951. *Chicago.*

GEORGE SELTZER, B.A., Chicago, 1940. The economics of multi-industry unionism. 1951. *Chicago.*

HAROLD A. SHAPIRO, B.S., Milwaukee State Teachers College, 1939; M.Ph., Wisconsin, 1940. History of labor in San Antonio, Texas. 1951. *Texas.*

KARL F. SIMPSON, JR., B.A., Baker, 1944; M.A., Northwestern, 1946. The survival capacity of public service unions. 1952. *Wisconsin.*

STEPHEN C. SMITH, B.A., DePauw, 1943. Employment opportunities in rural areas. 1951. *Wisconsin.*

IRVIN SOBEL, B.S., Ohio State, 1939; M.A., 1946; M.A., Chicago, 1948. Analysis of the pattern of collective bargaining in the rubber industry. 1951. *Chicago.*

JOHN H. D. SPENCER, B.A., Florida, 1941; M.A., 1942. Labor mobility in the El Paso area. 1952. *North Carolina.*

BENJAMIN S. STEPHANSKY, B.A., Wisconsin, 1939; M.A., 1942. Role of American labor in the international scene. 1952. *Wisconsin.*

ROBERT E. STRAIN, B.A., Wichita, 1937; M.A., Wisconsin, 1946. Occupational wage rate differences: determinants and recent trends. 1952. *Wisconsin.*

GEORGE STREUSS, B.A., Swarthmore, 1947. Leadership, participation, and democracy in the local union. 1951. *Massachusetts Institute of Technology.*

JAY TABB, M.A., Chicago, 1949. A study of white collar unionism (tactics and policies pursued in building the Wholesale and Warehouse Workers' Union of New York). 1952. *Chicago.*

GERALD THOMPSON, M.A., Iowa, 1948. The role and the effects of a private industrial pension plan. 1952. *Iowa.*

KENNETH THOMPSON, M.A., Iowa, 1947. Wage determination in the tractor industry. 1951. *Iowa.*

PROCTER THOMSON, B.A., Ohio State, 1940; M.A., 1941; M.A., Chicago, 1948. The productivity of labor in agriculture: an international comparison. 1951. *Chicago.*

HALSTEN J. THORKELSON, B.A., Wisconsin, 1938; M.A., 1946. Membership activities in selected trade unions. 1952. *Wisconsin.*

GENE B. TIPTON, B.A., California (Los Angeles), 1944; M.A., 1947. The labor movement in the Los Angeles area 1939-1949. 1952. *California* (Los Angeles).

WILLIAM B. WAIT, B.A., Tulane, 1940; LL.B., 1942. An historical and comparative study of the development of labor legislation in New York and California. 1953. *Cornell.*

JOHN R. WALKER, B.A., Georgetown, 1943; M.A., Columbia, 1948. Labor arbitration between General Motors and the U.A.W. 1953. *Columbia.*

AARON W. WARNER, B.A., New York, 1929; LL.B., Harvard, 1932. Labor under planning: a case study in British trade unionism. 1951. *Columbia.*

HERBERT E. WEINER, B.S.S., College of the City of New York, 1941; M.A., Columbia, 1943. Public policy and the regulation of discrimination in employment. 1952. *Columbia.*

ERNEST D. WENRICK, M.A., Michigan, 1949. Structure of the labor market and the theory of wage distribution. 1952. *Michigan.*

Robert J. Wolfson, M.A., Chicago, 1950. Regional wage differentials for hired agricultural labor. 1951. *Chicago.*

Norman J. Wood, B.A., Tusculum, 1947; M.A., Columbia, 1948. Restrictions of work output by the American railway unions. 1953. *Columbia.*

Murray Yanowitch, B.S.S., College of the City of New York, 1947; M.A., Columbia, 1949. Some aspects of labor-management relations in the USSR. 1952. *Columbia.*

Shih Cheng Yu, M.A., Iowa, 1949. A study of non-wage labor costs. 1952. *Iowa.*

Population; Social Welfare and Living Standards

Degrees Conferred

Eugene R. Beem, Ph.D., Pennsylvania, 1951. Consumer financed testing and rating agencies in the United States and their functions in the economy.

Herman D. Bloch, Ph.D., New School for Social Research, 1950. Socio-economic discrimination against the New York City Negro.

Arthur D. Butler, Ph.D., Wisconsin, 1951. The public employment service in the United States.

Thomas J. Hailstones, Ph.D., St. Louis, 1951. Historical and economic aspects of pension plans in the automobile industry.

Ernest Kurnow, Ph.D., New York, 1951. The modern foundation: a problem in social and administrative control.

Harvey Leibenstein, Ph.D., Harvard, 1951. Effect of seniority rules and work-sharing on unemployment compensation benefit costs.

Calvin W. Stillman, Ph.D., Chicago, 1950. Economic analysis of the policies of organized medicine.

Theses Completed and Accepted

Joseph M. Becker, B.A., Xavier, 1931; M.A., St. Louis, 1936; S.T.L., 1946. Charges of abuse in unemployment benefits during the reconversion period; a study in limits. *Columbia.*

Bruno J. Hartung, B.S., St. Vincent, 1939; M.A., Catholic, 1948. A study of the economic status of the professor in American colleges and universities. *Catholic.*

Theses in Preparation

George W. Barclay, B.A., Pennsylvania State, 1945; M.A., Princeton, 1950. A demographic study of Taiwan as a case of colonial development. 1952. *Princeton.*

Francis W. Barsalou, B.S., Drake, 1947; M.B.A., Southern California, 1949. Economics of group medical service in the United States. 1952. *Southern California.*

Gladys C. Birnkrant, B.A., Hunter, 1945; M.A., Yale, 1946. Some monetary and fiscal effects of private pension financing. 1952. *Wisconsin.*

John J. Carroll, M.A., Michigan, 1947. Fiscal aspects of social security programs. 1952. *Michigan.*

John A. Copps, B.S., Wisconsin, 1947; M.S., 1948. Views and concepts of social security. 1952. *Wisconsin.*

George T. Dowdy, M.S., Ohio State, 1948. An economic analysis of consumer food buying habits. 1952. *Ohio State.*

Arthur W. Else, B.S., Milwaukee State Teachers, 1938; M.Ph., Wisconsin, 1942. Compulsory health insurance movements in the United States. 1952. *Wisconsin.*

Ernest M. Van Den Hoag, M.A., Iowa, 1942. Economic and social aspects of education. 1952. *New York.*

E. A. Hale, B.A., Gustavus Adolphus, 1943; M.A., Illinois, 1948. Analysis of wage earner budget studies with emphasis on certain sub-groups of purchases, especially meats. 1952. *Illinois.*

Jules Joskow, B.S., College of the City of New York, 1941; M.A., Columbia, 1942. The health insurance plan of greater New York. 1952. *Columbia.*

JOSEPH J. KLOS, B.S., Oklahoma A. & M., 1940; M.S., 1941. The farmers and social security. 1952. *Wisconsin.*

GEORGE F. MAIR, B.A., Princeton, 1943; M.A., 1948. Selective aspects of the problem of population projection. 1952. *Princeton.*

ROBERT D. MASON, B.A., Fredonia State Teachers, 1946; M.S., New York State College for Teachers, 1947; M.A., Vanderbilt, 1949. Long range financing of unemployment insurance in Tennessee. 1952. *Vanderbilt.*

ROBERT G. MENEFEE, B.A., Berea, 1940; M.B.A., Tulane, 1942. Temporary disability compensation in the United States. 1952. *Wisconsin.*

LEON D. MOSKOWITZ, B.S., College of the City of New York, 1947; M.S., Wisconsin, 1948. The C.I.O. and social security. 1952. *Wisconsin.*

PHILLIP J. NELSON, B.A., Texas, 1948; M.A., Columbia, 1950. The relationship between consumption habits and productive efficiency. 1953. *Columbia.*

ROBERT OSBORN, JR., B.A., Princeton, 1943; M.A., 1948. The concept of mobility in economic theory. 1952. *Princeton.*

WALTER POLNER, B.A., Wisconsin, 1947; M.A., 1948. Railroad social security. 1952. *Wisconsin.*

DANIEL B. RATHBUN, B.A., Pomona, 1947. Economic evaluation of the Home-Loan Provisions of Title III of the Servicemen's Readjustment Act, as amended. 1952. *California.*

JEROME ROTHENBERG, B.A., Columbia, 1945; M.A., 1947. Welfare economics applied to hospitals. 1952. *Columbia.*

NORMAN B. RYDER, B.A., McMaster, 1944; M.A., Toronto, 1946; M.A., Princeton, 1949. The measurement of temporal variation in reproductivity. 1952. *Princeton.*

SIDNEY W. SALSBURG, B.A., Michigan State, 1946; M.A., Wisconsin, 1947. The Townsend Plan and other universal pension programs. 1953. *Wisconsin.*

CHUEH-YING T. SHIH, B.A., Central Political Institute (China), 1940; M.A., Wisconsin, 1946. Analysis in the field of health insurance. 1952. *Wisconsin.*

GORDON S. SKINNER, B.S., Boston, 1948; M.S., Wisconsin, 1949. Experience rating in unemployment insurance. 1952. *Wisconsin.*

FRED SLAVICK, B.A., Wisconsin, 1946; M.A., 1947; M.A., Princeton, 1949. The provision of health insurance and medical care through collective bargaining. 1952. *Princeton.*

GEORGE J. STOLNITZ, B.A., College of the City of New York, 1939; M.A., Princeton, 1942. Studies in the derivation of life table measures from single censuses. 1951. *Princeton.*

LYLE R. TRUEBLOOD, B.S., Missouri, 1948; M.A., 1949. Disqualification of unemployment compensation benefits in Indiana. 1952. *Indiana.*

CHARLES E. WULLER, B.S., St. Louis, 1938; M.S., 1943. A critique of the federal program of mortgage insurance and home-loan guaranties, 1934-1949. 1952. *St. Louis.*

ABRAHAM I. ZELEN, B.S., New York, 1936; M.A., 1937. Medical men and social legislation in Victorian England. 1952. *New York.*

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief description of vacancies announced and of applications submitted (with necessary editorial changes). Since the Association has no other way of knowing whether or not this section is performing a real service, the Secretary would appreciate receiving notification of appointments made as a result of these announcements. It is optional with those submitting such announcements to publish name and address or to use a key number. Deadlines for the four issues of the *Review* are February 1, May 1, August 1, and November 1.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

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Economic theory, monetary economics, business cycles, international economics, economic history: Man, 30, married, Ph.D. residence completed at Columbia University. Five years of teaching and administrative experience in Eastern colleges; 2 years of experience in economic research. Seeks teaching or research position. Available in September, 1951. E292

International trade, finance, statistics, prices, money and banking, principles: Man, 32, M.B.A., Columbia University; Ph.D. nearing completion. Currently assistant professor. Available in September. E326

Principles of economics, monetary theory, public control, comparative economic systems, money and banking: Man, 29, Ph.D.; undergraduate scholarship holder; doctoral fellow for 2 years. Two years of teaching experience; last appointment was as assistant professor. Desires to settle permanently in the East. Available in September, 1951. E339

Money and banking, economic history, labor economics, history of economic thought, public finance, comparative systems, economic statistics, introductory eoonomics: Man, 30, married, course requirements for Ph.D. completed at Columbia University, veteran of World War II. One and a half years (including two summer sessions) of teaching experience in wide range of courses. E340

Economic principles, economic thought, general economic history, monetary economics, labor problems, comparative economic systems, structure of Soviet economy: Man, 27, B.A. (*summa cum laude*), New York University; M.A., Columbia University; has completed residence requirements for Ph.D. at Columbia University, Part-time instructor in economics at large Eastern university; at present, national executive director of an Institute of Social and Political Science. Seeks teaching position. Available in September, 1951 E352

VACANCIES AND APPLICATIONS

Vacancies

Economists Available for Positions

Economic theory, monetary economics, business cycles, international trade, economic history, statistics: Man, 35, married, M.A., Columbia University, with further work towards Ph.D. Two years of part-time teaching at leading university; 2 years of experience with private research organization. Seeks teaching position. Available in September, 1951. E366

Economic theory and principles, Eastern European economics, international economic problems, sociological background of economics: Man, 30, married, Ph.D. (*magna cum laude*), University of Innsbruck (Austria); permanent permit for America. Special interest in relations between religion and economics from Protestant standpoint. Desires teaching or research position. E376

Economic history, international economics, history of economic thought, comparative economic systems, principles, problems: Woman, Ph.D. Five years of teaching experience; at present at university in Middle West. Desires position for fall, 1951. E380

Public finance (including fiscal policy), money and banking, corporation finance, international commercial and economic policies, general economics: Man, married, Ph.D., LL.D. Extensive experience in teaching, research, and local, state, and national government service, retiring from well-known American university. Available in September, 1951. E385

Economics, scientific method, business cycle analysis, monetary theory, money and banking, political economy: Man, 30, married; equivalent of Ph.D. academic work virtually completed. Six years of experience in economic research in leading American independent research organization and university business research bureau; brief experience in government agency; capable of directing staff of a research bureau. Author of several booklets, research studies, and responsible for publications of weekly research bulletins. Seeks position that involves research and writing, as well as teaching. Résumé, samples of writings, and references available on request. Available immediately. E388

Public finance, economic principles, business cycles, international economics: Man, 26, M.A.; one year on Ph.D. as an exchange student to a British University. Some experience in teaching and research. Desires position with opportunity for pursuing further graduate study. Available immediately. E389

Economic theory, money and banking, productivity and national income statistics: Man, 27, married, Ph.D.; educated American and European universities. Teaching experience in American universities; newspaper experience in Europe. Seeks teaching or research position. At present employed. E390

History of economic doctrines, principles of economics, economics of industry and commerce, national economic policy, economics of U.S.S.R.: Man, 37, former professor of economics in Europe. Has had experience (leading positions) with research on economics of the U.S.S.R.; perfect command of several Eastern European languages. Seeks research position on the economics of the U.S.S.R. Prefers Chicago and adjacent area. E391

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